

EFFICACY OF COGNITIVE BEHAVIOURAL THERAPY ON
DEPRESSION AND ANXIETY DISORDERS AMONG CAREGIVERS OF
KIDNEY PATIENTS ON DIALYSIS IN NAIROBI COUNTY

BY

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(13-0411)

A dissertation presented to the School of Human and Social Science

of

Daystar University

Nairobi, Kenya

In partial fulfilment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in Clinical Psychology

May 2016

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DECLARATION

EFFICACY OF COGNITIVE BEHAVIOURAL THERAPY ON DEPRESSION
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ON DIALYSIS IN NAIROBI COUNTY

I declare that this dissertation is my original work and has not been submitted to any other college or university for academic credit.

Signed: _____ Date: _____

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ACKNOWLEDGEMENTS

It was impossible to do this work alone. I am deeply grateful to all who contributed in it one way or another, even if not mentioned here. I wish to thank the following:

My first supervisor Dr. Lincoln Khasakhala for guidance, insight and persistent encouragement. Thank you for exposing me to research and affirming that I could do it. My second supervisor Professor Rebecca Oladipo for quick yet superbly detailed reading of my work. The work could not have taken shape without your outstanding input through which I have also been mentored. You have modelled a resourceful supervisor to me. My examining committee Professor Michael Bowen and Dr. Philemon Yugi for your perceptiveness, guidance, information and encouragement.

Dr. Alice Munene: for being my mentor, support, encouragement, a source of wisdom, strength and perspective. You are an inspiration, a role model, and an admirable person, an authentic Christian. I learn so much from you every day and appreciate you deeply.

Lecturers who have given of their time and shared their academic prowess generously and which has served to sharpen my research skills. Special mention for Drs. S. Muriungi and A. Mbwayo who would never let me give up and for their insights into research generally;

Fellow classmates in the first cohort for support and encouragement since we started the program in 2013; special thanks to those we worked closely on our dissertations;

Peter, for finally understanding this work, p values and all; even “defending” it back to me! Mbui, for funding a third of my budget for this work. So too the Mainas, for financial and moral support.

My research assistants: the most conscientious, dedicated, diligent, intelligent and prayerfully encouraging team a researcher could ever hope for. Jeremiah Kimosop, Esther Kihara, Ambassador Everiste, and Rahab the Prof, I salute you! Tugi, my daughter you are the best research assistant ever. Valo and Vic for persevering through computer work to help me, you are the best boys ever!

All the authors the world over whose work I requested: you freely shared your works which could only otherwise be accessed through purchase. Thank you for untold academic generosity; Professor Abel Mugenda specially, thanks for the things you taught me.

Dr. S. R. Sakr, Grace Attwa and the entire Renal Unit staff at Coptic Hospital for great support and co-operation throughout the duration of the research. Muhunyo and HAKI Foundation for moral support every step of the way and showing me how to develop a thick skin among nephrologists;

My friends Catherine, Griffin, Gloria, Faith and the Gitongas, who did not give up on me in my three year absence, but constantly prayed for and wished me well. Leonida who has been my support and has let me concentrate on my work since MA. Dr. Palpsol Quaich, despite your distance, your invaluable friendship and moral support is invisible, but present in every page of this work.

Finally and most to God, in whom I live and move and have my being: my ever constant help.

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LIST OF ABBREVIATIONS AND ACRONYMS

APA	American Psychological Association
AOR	Adjusted Odds Ratio
BAI	Beck's Anxiety Index
BDI	Beck's Depression Index
CBT	Cognitive Behavioural Therapy
CH	Coptic Hospital
DMS	Daily Mood Scale
DTR	Daily Thought Record
ESKD	End Stage Kidney Disease
FCG	Family Caregivers of ESKD patients
HOD	Head of Department
KRA	Kenya Renal Association
MAMC	Medanta Africare Medical Centre
MI	Mater Hospital
MI	Motivational Interviewing
NACADA	National Campaign Against Drug Abuse
NACOSTI	National Council for Science, Technology and Innovation
NWH	Nairobi West Hospital
SDT	Self Determination Theory
SPSS	Statistical Package for Social Sciences
USA	United States of America
WHO	World Health Organization

ABSTRACT

This study focused on depression and anxiety among family caregivers (FCGs) of dialysis patients. Studies have shown that this population has an onerous caregiving burden with the patient requiring much care due to the unique demands of kidney failure. This leads to depression and anxiety in the FCGs which requires psychological intervention. Available interventions have constituted mainly of education on renal disease and very little on psychotherapeutic treatments for the FCGs. Therefore, this study tested a model of psychotherapy referred to as Cognitive Behavioural Therapy (CBT). Using a convenience sample in various hospitals in Nairobi, this quasi-experiment determined the severity of depression and anxiety among the FCGs, their social demographics (and those of their patients) and how these characteristics associated with the mental disorders in question. The sample had an experimental (n=49) and a control group (n=47). The participants were assessed using various psychological tools and a researcher-generated socio-demographic questionnaire. Only those who had depression and anxiety were included in the study. Assessments were done at baseline, midline and endline. Only the experimental group received the CBT. Data was analysed using inferential statistics. Chi-square, t-tests and ANOVA were used to compare the distribution of different variables within and between the study groups. Regressions were done to test the strength of associations between the variables. The results revealed that the FCGs had moderate depression and anxiety with an 85% comorbidity rate. Gender, residence with the patients, doing business while caregiving and education level of the patients were positively associated with depression and anxiety. CBT was found to be effective in reducing the symptoms of depression and anxiety, from moderate to mild and normal. Hence, CBT was recommended as part of the treatment protocols for ESKD.

DEDICATION

This work is dedicated to patients of ESKD and their family caregivers, specifically, a family that has tirelessly given care: First off, Francis, the ESKD patient, kudos for exemplary fortitude; you are a role model of endurance and perseverance. To Faith, the primary FCG, for becoming a nurse, pharmacist, nutritionist, transport manager, accountant, counsellor, and entertainer all rolled into one and taking care of Dad wholeheartedly with many pains of your own and reducing your social life to almost nil. For bearing so much; the Lord sees.

To all the other carers, your work has not been in vain. These include Catherine and Njoro for great sacrifice in the nutrition area. Baba Tony for being the donor, though it never worked, kudos for laying your life down for a brother. Peter, Tugi, Valo and Vic for enduring my long absences as I did this work and travelled to India. You are true gems and I love you all with all my heart. Peter and Koki Kariuki for being such givers and never demanding anything. The cradle-to-the-grave sisters, much loved and appreciated. To Rahab Njoki, my dearest mother-in-law and therapist full of love and good cheer and so ever supportive even when she doesn't understand. I love you mother of mine.

May the Lord who sees all your sacrifices repay you in this life.

1.1 CHAPTER ONE: INTRODUCTION AND BACKGROUND TO THE STUDY

1.2 Introduction

This chapter discusses the background of the study. It also gives an overview of the psychological state of family caregivers (FCGs) of End Stage Kidney Disease (ESKD) patients. The statement of the research problem, purpose of the study, objectives, research questions, rationale, assumptions, limitations and delimitations and the significance of the study are also discussed.

It has been established that FCGs of patients with renal disease undergo serious stresses due to their role, which could result in the development of mental disorders among this population (Auer, 2002; Belasco & Sesso, 2002; Belasco, Barbosa, Bettencourt, Diccini, & Sesso, 2006). These FCGs need support and care to address the negative impact their relatives' illness or disability has on them. Feinberg, Reinherd, Houser, and Choula (2011), reviewing 30 years of general caregiving literature, found a key theme: giving care to a chronically-ill family member can have negative effects on the caregiver's life. Accordingly, the FCG is negatively affected in terms of finances, retirement, career, physical and emotional health and social networks. Should the patient with renal disease have comorbidity of mental and physical disorders, the impact becomes particularly severe on the FCGs. In turn, they might present with emotional difficulties such as depression and anxiety-related symptoms; self-medication; poor quality of life and a negative impact on perception of their physical health.

Caregiving literature referred to FCGs as the "hidden patients" (Kristjanson, 2004) or as "secondary patients" (Reinherd, Given, Petlick, & Bremis, 2008). Like any other terminal illness, from diagnosis and in the course of treatment, the family experiences a lot of financial and lifestyle changes. It is the family that withstands the worst of the illness as it seeks to facilitate, accommodate and effect requisite changes (Auer, 2002). Certainly, most of the

patient's life is spent at home under the care of (most probably) a family member who is unpaid for the diverse roles he or she plays. These roles are burdensome and need to be addressed during the course of treatment of the patient.

FCGs can therefore be identified as the individuals who during the course of treatment are most closely involved in caring for the patients and helping them cope with and manage their chronic illness. Auer (2002) pointed out that the renal medical team takes great care of the patient after diagnosis. This is not so for the caregivers whom the medical team lends little support, whether psychologically or otherwise. This support to FCGs is crucial because, as mentioned before, there are complex medical tasks that FCGs undertake. They often feel unprepared to provide care, have inadequate knowledge to deliver proper care, and receive little guidance from the formal health care providers (Scherbring, 2002).

Due to their inadequate knowledge and skill, FCGs may be unfamiliar with the type of care they must provide or the amount of care needed. For instance, they are tasked with observing their patients for early signs of problems such as medication side effects, and high or low blood pressure. These are serious responsibilities that FCGs are often unable to interpret the meaning of or discern an emergency situation. With the scanty help from health care professionals in managing these tasks and the emotional demands of caregiving, the caregivers often neglect their own health care needs and this may cause deterioration in their health and well-being (Bell, 2011). This is one factor that could lead to depression and anxiety among them (Ndanyi, 2013). There is therefore need for an intervention that will help them deal with the mental syndromes they undergo. This study proposed a model of psychotherapy that could support FCGs of ESKD patients in groups. Group therapy using Cognitive Restructuring and Systematic Desensitization has been found to be successful (Head & Gross, 2003). For ease of reference, the model shall collectively be referred to as CBT in this study.

1.3 Background to the Study

End Stage Renal Disease (ESKD) is a debilitating disease and a major global problem (Bayoumi et al., 2013). It is the terminal stage of kidney disease, a progression from Chronic Kidney Disease (CKD). CKD is usually an irreversible and progressive disease and if left untreated, could lead to (and in most cases will progress to) ESKD (Wong et al., 2014) which signifies that the kidneys have stopped working.

The kidney is a vital organ in the body, responsible for blood purification and other waste filtration inside the body. Life cannot continue without it since, left in the body, the toxins would damage the body and eventually lead to death (Akala, 2011). Clearing of the toxins is achieved through the process of filtration which takes place in the glomerulus section of the kidney in functioning kidneys (Waithaka et al., 2010).

In order to know whether the kidney is functioning well, a measure called the Glomerulus Filtration Rate (GFR) is used. When it is low, it predicts cardiovascular disease, ESKD or death (Clase, 2006). This is when the GFR rate is less than 15, which translates to loss of kidney function of 85-90%. At this level of kidney dysfunction, an artificial method to clear the nitrogenous waste has to be used and is referred to as dialysis (Finnegan-John & Thomas, 2013).

There are several types of dialysis, but whichever is chosen, it is a lifetime process for the patient. It is done several times a week and without doubt introduces a number of drastic lifestyle changes for the patient and the family. Their lives now revolve around dialysis and avoidance of opportunistic illnesses. Dietary and fluid restrictions have to be introduced in order to accommodate the illness. Patients too must perform the demanding role of balancing food, fluid, and medication to maintain correct vitamin, iron, and protein levels. All this calls for a daily vigil and constant medical tests to confirm the patient's state. These changes and medical invasions significantly impact on social functioning of the patient. In turn, they can

affect a patient's sense of personal control leading to anxiety and depression, inhibiting coping, and adjustment (Chilot, Wellstead, & Davenport, 2011; Kimmel, 2000). This drastic change is experienced in the patient's family. With time, one or two family members become primarily responsible for the needs of the patient. The responsibility they carry over the patient is referred to as the caregiver burden. Caregivers are thus defined as the individual(s) who during the course of treatment are most closely involved in caring for the patients and helping them cope with and manage their chronic illness (Gayomali, Sutherland, & Finkelstein, 2008).

Once dialysis begins, a drastic lifestyle change happens mostly for entire households. Two main impacts have been identified: the week revolves around the recommended two or three days per week of dialysis which interrupts the caregiver's social life and may have implications on their careers. Secondly, dialysis may make the patient frail and unable to take care of himself or herself thus creating greater dependency on the caregiver (Low, Smith, Burns, & Jones, 2008). Thus, the caregiver's burden increases significantly as functional and cognitive impairments imposed by the chronic disease limit the patient's ability for self-care (Gayomali et al., 2008).

Indeed, even when a kidney transplant has been successful, the caregiving burden, characterized by a lower quality of life and depression increases due to the intense post-operative care (Wicks, Milstead, Hathaway, & Cetingok, 1998). Studies have shown that nephrologists are not sufficient as sole caregivers to the patient since the care required is multidimensional (Fayer, Nascimento, & Abdulkader, 2011). This burden is therefore shared by nurses and other attendants as well as members of the patient's family. These family caregivers were the subject of this study.

1.4 Problem Statement

FCGs experience negative psychological and physiological conditions owing to the burden of caregiving. Some FCGs are unaware that their role is responsible for these conditions. However, one study found that of those who were aware, (17-35%) viewed their health as poor (AARP Public Policy Institute, 2012). The problems manifest in all kinds of complications ranging from depression, anxiety, somatizations to substance abuse which FCGs do in order to cope with their overwhelming responsibilities (National Alliance for Caregiving, 2009). It is therefore not surprising that several studies have established the need to find a treatment model in support of the psychological health of family caregivers.

Belasco, Barbosa, Bettencourt, Diccini, and Sesso did a study in 2006 to find out the quality of life of the FCG. The study found that most family caregivers were stressed and showed signs of depression. The study established the need for doctors to be deliberate in supporting FCGs at the time of making the diagnosis for ESKD. Further, it called for constant vigil on the FCG to identify mental disorders and treat them medically and psychologically.

Gayomali et al. (2008) expressed surprise that there was little work done to address the caregiver burden and its attendant problems yet studies showed the caregiver burden was similar to that of other chronic illnesses.

Gayomali (2008) cited Tong, Sainsbury, and Craig (2008) who conducted a systematic literature review to look for studies evaluating any interventions for caregivers of ESKD patients from 1950 to January 2008. They identified only three articles that described interventions for caregivers of CKD patients; all of which assessed the effect of educational material given to the caregivers and described an improvement of knowledge with no report of other outcomes. Celik, Annagur, Yılmaz, Demir, and Kara (2012) found that FCGs have a poorer sleep and quality of life than their ESKD patients (FCGs at 88% and patients at

73.9%). They called for a combination of educational, social, and psychological support interventions to improve their ability to cope.

From the foregoing, it is clear that there is a need for caregivers to be psychologically supported when a diagnosis of ESKD is made. Interventions should seek to decrease the caregiver's burden in order to help them cope, prevent, and treat any resulting psychological problems (Shechtman & Pastor, 2005). More empirical evidence was called for that would show models of therapy that would reduce symptoms of pathology among FCGs. This is the gap that this study intended to fill.

CBT is well established as the first line of treatment for depression and anxiety (Tolin, 2010). However, the researcher did not find a study that had applied the modality to the population of this study. By testing the efficacy of CBT in symptom reduction of depression and anxiety among FCGs of patients with ESKD, this study hoped to establish an empirically-proved intervention that would be used in the future to assist different stakeholders in the renal arena.

1.4 Purpose of the Study

The purpose of this study was therefore to establish the efficacy of CBT on depression and anxiety of family caregivers of patients with ESKD.

1.5 Objectives of the Study

1.5.1 The main objective of this study was to investigate the effectiveness of CBT on depression and anxiety among family caregivers of ESKD patients.

1.5.2 Specifically, the study was to:

- i. Determine the severity of depression and anxiety among FCGs of patients with ESKD;
- ii. a) Describe the socio-demographic characteristics of FCGs and the patients;

- b) Find out the association between the socio-demographic characteristics of FCGs and of the patients with their levels of depression and anxiety;
- iii. Determine the effectiveness of CBT in reducing symptoms of depression and anxiety among FCGs;
- iv. Suggest a recommended treatment model for the reduction of symptoms of depression and anxiety among FCGs of ESKD patients.

1.6 Research Questions

This research aimed to answer the following questions:

- i. What was the severity of depression and anxiety among FCGs of patients with ESKD?
- ii. a) What were the social-demographic characteristics of the FCGs and the patient?
b) Was there an association between the socio-demographic characteristics of FCGs and the patients with the FCGs levels of depression and anxiety?
- iii. What was the effectiveness of CBT on FCGs' depression and anxiety symptom reduction?
- iv. What recommendations could be made for effective treatment of depression and anxiety among FCGs of patients with ESKD?

1.7 Justification of the Study

This study's focus was on the psychological well-being of the caregivers of ESKD patients and in particular, those in the family responsible for feeding, medicating, and taking the patient for the frequent hospital visits that characterize this illness. Little is known about this population regarding their depression and anxiety particularly in low income countries. This study therefore intended to bring this information to the limelight. The rationale for this

was to create awareness that this population was calling for attention from the mental health community.

The focus was on depression and anxiety since studies have proved that these are the two main disorders that are a consequence of caregiver stress. The diagnosis, frequent illnesses and hospitalizations that a dialysis patient undergoes very soon overwhelm the carers, causing them stress and even stress-related illnesses (Auer, 2002). The burden of the caregiver is further compounded by the occurrence of comorbidity of kidney disease with mental disorders like depression. The researcher had personally been exposed to the absence of attention towards FCGs. She had observed that the multidisciplinary medical team that took care of the patient did not give attention to the mental state of the FCG. She therefore aimed at presenting a therapy that would add another dimension to the arena of ESKD. Having called attention to the problem, she aimed at simultaneously providing a solution.

In addition, it had been observed that certain characteristics of the FCGs and their patients would predispose FCGs to depression and anxiety. These were social-demographic factors which when known would aid policy makers to give attention to the plight of FCGs of ESKD patients. This study commenced in the wake of the awareness created by the Kenya Renal Association and Kenyatta National Hospital on the state of renal health in Kenya during the World Kidney Day on 12th March 2015 (KRA, 2015). Subsequently in May 2015, the Kenyan President announced the addition of dialysis machines to government hospitals (Office of the President, 2015). The unprecedented political controversy that ensued turned the public's attention on issues of renal health in the country. In this state of heightened awareness, this study will be useful to provide information and perspective on FCGs who were missing in the limelight during the controversy.

Calls for a working model of therapy for the study population have been variously made (Belasco & Sesso, 2002; DiMatteo, Lepper, & Croghan, 2000). To this end, this study

sought to test a model of therapy that has effectively treated depression and anxiety elsewhere, but not in the population presently studied. Previously, there had been no empirically-tested treatment modality among psychologists, counsellors and other stakeholders that would engage with FCGs of ESKD patients. Hence, the results of this study would also contribute to the knowledge base essential for the practice of psychology.

1.8 Significance of the Study

Firstly, FCGs who participated in the study benefitted as they received information on depression and anxiety and how they related with their caregiving role. They were also assessed and treated for these disorders. Overall, patients of ESKD stand to gain better care when their family caregivers are supported psychosocially. Bodies such as the Kenya Kidney Foundation and HAKI Foundation who are involved in various ways in the renal disease arena would also be better equipped in their programs from the findings of this study.

Doctors usually give instructions for care to FCGs without being aware of the burden they carry. This study would inform the medical community about the caregiving burden and its psychological implications. Out of this, it is hoped that they might handle FCGs with better support. The study would also be useful to psychologists and counsellors dealing with FCG support. Upon testing CBT in this study psychologists would be advised as to its workability. Its success in reducing the symptoms would provide practitioners with a model of therapy that they could successfully employ. They would also be well advised if the model did not work so that they may avoid it in their practices. Whatever the results, there would be an addition of information to fill the gap in knowledge in this area.

Additionally, the topic was of interest to the researcher owing to a personal experience of giving care to a close family member with ESKD. Having not found any relevant and researched programs locally, the researcher was persuaded that the findings would be useful in the renal disease arena in Kenya. Moreover, there is a paucity of literature

on psychological interventions among ESKD patients and their caregivers in this region and the study would make a useful contribution in this regard.

1.9 Assumptions of the Study

There were various assumptions that the researcher made:

1. That the participants were willing to admit that a caregiver burden accrued from their role, without feeling guilty that they were referring to their patient as a "burden". The researcher used carefully-worded explanations about the research so as to minimise the risk of this misinterpretation. In addition, the researcher reminded the participants several times that the research was useful and not intended to harm them in any way.
2. That the patients remained stable during the duration of application of the treatment and that the FCGs were not distracted from the study.
3. That the patients whose FCGs were recruited at the experimental site would do dialysis there throughout the study period to guarantee participants' continued involvement.
4. That the control group would avail themselves for midline and endline assessments.
5. That all the medical personnel at the experimental study site would appreciate the importance of this study and be co-operative.

1.10 Scope of the Study

The study was carried out at Coptic Hospital (CH) in Nairobi which was the experimental site. The control group was drawn from various other sites in Nairobi County which were either hospitals or dialysis units, namely Nairobi West Hospital (NWH), Medanta Africare Medical Centre (MAMC) and Mater Hospital (MH). The study was confined to measuring the efficacy of CBT on family caregivers who had depression and anxiety.

1.11 Limitations and Delimitations of the Study

Due to ignorance and stigmatization about mental disorders, many caregivers did not understand the need to sign up for participation in the study. For that reason, the researcher

recruited research assistants and trained them to empower the FCGs to have an accurate picture of the study. For the duration of the recruitment, the researcher and the assistants were stationed at the research site and other dialysis units were fully involved in the recruitment. Once so guided and their doubts cleared satisfactorily, participants enrolled into the study with ease.

The researcher's choice of private hospitals for this study was also a limitation in that the population was small. ESKD is a very expensive disease and only a few can afford to use private sector facilities. Dialysis units are also small in the various places the researcher was able to access. Private hospitals are also very protective of their clients and are sensitive to any form of investigations carried out in their domain. For this reason, the researcher was constrained by working with a small number. Nevertheless, statistical methods were used to calculate a scientifically acceptable number to ensure the results were meaningful. The researcher also took cognisance of the fact that small samples are a usual occurrence in psychology research.

That the study was done in the private sector in the capital City County of Nairobi only was also limitation. It did not address the setting in public hospitals and in other Counties. Another limitation was that stress, income level and substance use by FCGs was not measured using relevant psychological tools. If done, the study may have provided more detailed information on the associations between these variables and the outcomes that were being measured. Time and cost constraints made it impossible to measure the impact of the intervention on patient outcomes i.e. whether patients would improve once their FCGs' symptoms of depression and anxiety reduce. However, these issues can be the subject of or be vitally considered in future studies.

1.12 Definitions of Terms

The following terms were used and operationalized in this study as follows:-

Anxiety: Specific phobias and general fear and worry related to caregiving (American Psychological Association, 2014).

Cognitive restructuring: A model of psychotherapy that involves challenging maladaptive thoughts that influence emotion and behaviour (Beck, 1995).

Comorbidity: The occurrence of depressive and anxious symptoms concurrently in an individual (Medicon Online Dictionary).

Depression: Major Depressive Disorder (American Psychiatric Association, 2013)

Dialysis patients: Individuals undergoing dialysis whether eligible for kidney transplant or not.

Efficacy: The effectiveness of the therapy model applied to reduce symptoms of depression and anxiety in family caregivers (Medicon Online Dictionary).

Family caregivers: Those (unpaid) members of the patient's family directly involved in the care of the patient's daily needs (Kelly, 2010).

Group therapy: Application of CBT in a group (Corey, 2008).

Prevalence: The number of people displaying a disorder in the total population at any given time (National Institute of Mental Health, 2015).

Severity: The degree of illness and risk of disease manifested by patients based either on clinical data from the medical records or on hospital discharge/billing data. Outcome comparisons usually are interpreted in terms of severity of illness to ensure meaningful data interpretations are made (Medicon Online Dictionary).

Psychotherapy: Treating people with mental or psychological disorders by assisting them to understand the illness and manage the symptoms in order to improve daily life functioning (National Institute of Mental Health, 2015).

Systematic Desensitisation: A model of CBT that is widely used as treatment for anxiety disorders (Head & Gross, 2003).

1.13 Summary

This chapter gave an overview of the caregiving burden of family caregivers of patients with ESKD. It demonstrated that the nature of the disease has a negative bearing on the psychological state of the caregivers, specifically, in causing depression and anxiety. Further, the chapter showed that there was a paucity of information, particularly in Kenya and in low income countries in general about depression and anxiety among FCGs of ESKD. The implication of this information gap also implied that psychological interventions had not been researched, thus necessitating this study. The following chapter reviewed the literature on these issues and set out the theoretical and conceptual frameworks for the study.

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2.1 CHAPTER TWO: LITERATURE REVIEW

2.2 Introduction

This chapter is a review of the current literature on the state of depression and anxiety among FCGs of patients with ESKD. The theoretical framework of the study is discussed and some studies reviewed establish that indeed there are caregiver stressors associated with the mental disorders under investigation which calls for psychological interventions. In addition, the literature reviewed details the plight of FCGs and demonstrates the significance of integrative models of therapy. Empirical literature is also appraised as is the intervention the researcher used in the study. Finally, the conceptual framework is demonstrated.

2.3 Theoretical Framework

Theoretical framework refers to the over-arching theory that undergirds a research study. A theory is an established and coherent explanation of a phenomenon, which includes the major concepts, laws and relationships that bind these notions together (Mugenda, 2008). It organizes knowledge that has been gathered from research findings and which powerfully forms a framework to explain the phenomenon. In research therefore, the intention of the theoretical framework is to give a structure explaining the work and to provide it with a foundation that is shared with other scholars (Mugenda & Mugenda, 2012). This study was anchored in the self-determination and cognitive theories.

2.3.1 *Self Determination Theory (SDT)*

The self-determination theory was the result of the extensive work of Ryan and Deci spanning over 40 years of research. It has been described as a macro-theory of human motivation, emotion, and personality (Vansteenkiste, Niemiec, & Soenens, 2010). The theory generally posited a view of human motivation that emphasized the extent to which

behaviours are relatively autonomous (i.e., the extent to which behaviours originate from the self) versus relatively controlled (i.e., the extent to which behaviours are pressured or coerced by intrapsychic or interpersonal forces). It offered a comprehensive approach to studying healthy behaviour through its conceptualization and measurement of autonomy, perceived competence, relatedness to others, and its emphasis on the role of the social context in supporting or thwarting optimal motivation.

SDT developed in part as a reaction to Skinner's operant conditioning theory whose central assumption was that behaviour was controlled by reinforcement contingencies in the environment (i.e. rewards and punishments). Deci (1971) refuted this idea and proposed that people by nature possessed intrinsic motivation which propelled their behaviour. He further argued that people are internally "curious" and seek to discover new perspectives in order to overcome challenges. According to Deci, healthy humans were active from birth, were inquisitive and curious; displaying a universal readiness to learn and explore, hardly needing external rewards to do so. This perhaps is what was responsible for infants' and toddlers' exploratory play. This volition was not limited to childhood only, but was responsible for cognitive and behavioural well-being across the lifespan. Accordingly, depression in FCGs from an SDT perspective may have resulted from lack of motivation to meet the challenges presented by ESKD, which could have derived from failure to meet certain psychological needs as discussed below.

SDT defines motivation as psychological energy directed at a particular goal (Ryan & Deci, 2000). It emphasizes the importance of motivational quality in addition to its quantity (Australian Institute of Professional Counselors, 2010; Patrick & Williams, 2012). Motivation, according to SDT, occurs on a continuum. On the one end, the individual voluntarily chooses to participate, exert effort and continue in an activity to get satisfaction and fulfilment. This has been referred to as self-determined behaviour or exercise of free

choice (Deci, 1971). According to this theory, reasons behind the individual's motivation or why they choose to participate, exert effort and continue in an activity could be organized along a continuum of self-determined behaviour which is also called intrinsic motivation (Ryan & Deci, 2000).

Family caregivers who were not depressed may have been working from this level of motivation; they may have taken care of their sick member for their own fulfilment and satisfaction as helpers supporting a loved one. Those who had depression, however, may have been at the other end of the continuum of the lowest level of self-determination. This was referred to as amotivation, connoting a feeling of powerlessness and helplessness (Deci & Ryan, 2008). This is reflected in the diagnostic features of depression described below. Apart from lacking motivation due to the fatigue they experienced in caregiving, FCGs may also have acquired a fatalistic view that despite whatever they did the patient would die anyway.

In the middle of the continuum, between intrinsic motivation and amotivation, is extrinsic motivation. Extrinsic motivation is where an individual's desire to pursue a certain activity is fuelled by external rewards such as recognition, monetary gains, prizes, among many other things. This means that the individual's motivation is externally regulated. For instance, an FCG might be motivated by the praise from the doctor when the patient has good blood results or has adhered to medication and diet. He or she might also be thanked or praised or recognised by the other members of the family and society for his or her sacrificial role as caregiver. The assumption is that when an individual's motivation is thus externally regulated, then such people will work with the intention of obtaining the desired reward. This is the only level of motivation recognized by operant conditioning (Gagne & Deci, 2005).

Reliance on rewards makes extrinsic motivation an unstable basis for providing care by the FCG. This is because in the event that it is not forthcoming, the FCG might end up becoming demotivated in the caregiving role. For instance, a depressed ESKD patient might

not readily reward the FCG with praise. Further, if the rewards are forthcoming they may not last for very long. Such FCGs would also not support full autonomy because they rely on other people or things for fulfilment.

In full realization of the limits of extrinsic motivation, studies have been done in the SDT school to find ways in which it can be made more useful. It has been found that extrinsic motivation develops along a continuum. One end is 'introjected' regulation which describes the state in which the individual is controlled by the feeling of pressure to avoid guilt or anxiety and to attain pride (Zhou, Wei, & Deci, 2009). This scenario fits with a lot of caregivers who take up the role to avoid feeling guilty, rather than out of a sense of responsibility and personal fulfilment (intrinsic motivation).

SDT recommends a more autonomous extrinsic motivation referred to as "identification". This occurs when the individual is helped to identify with the importance of behaviour and thus accept it as his or her own. For example, FCGs can be helped to see the significance of all the responsibility and tasks that they do. In this case their ownership of them will lead them to be more intrinsically motivated and not just to do them to avoid guilt. The intervention proposed for this study hoped to enhance the motivation of family caregivers hence reduce depression and anxiety symptoms.

At the end of the continuum is the most autonomous form of extrinsic motivation known as "integrated regulation". This means that the individual considers the behaviour to be a fundamental part of who they are and the desire to execute that behaviour stems from their sense of self which makes them self-determined. Therefore, integrated FCGs identify their caregiving role as central to their sense of self. They now attend to their responsibility as fulfilling their role. In other words, they no longer do it for others to see, but the result of a positive state of mind which should reduce symptoms of depression.

This type of regulation is considered to be the most advanced form of extrinsic motivation that shares qualities with intrinsic motivation. However, it is still considered extrinsic because the motivation remains characterized by external personal goals (e.g. ensuring the patient's adherence to diet) with little interest being seen or expressed in the activities themselves (Gagne & Deci, 2005).

In this theoretical model, extrinsic motivation is defined as a motivation for an individual to participate in an activity for instrumental reasons or as a means to achieve some other desired end (Ryan & Deci, 2000). People may also participate in the activity to receive recognition and praise from other members or society in general. FCG motivation may come from extrinsic benefits such as the patient getting sick less often because of their efforts at ensuring adherence to diet and medication. Doctor's praise may be another motivating factor. These rewards are dependent on other people's actions and removing them may demotivate the FCGs (Markland, Ryan, & Rollnick, 2005). For this reason, it is more enduring to have intrinsic motivation.

Motivation denotes an individual's tendency for growth which reflects in behaviour or activity that the individual performs for its own sake or perceives as being inherently satisfying (Ryan & Deci, 2000). In addition, the individual may perceive the behaviour as emanating from their sense of self rather than from experiences of control or coercion. FCGs who are depressed and anxious lack motivation, and instead of growing, they regress behaviourally and cognitively.

According to the self-determination theory, individuals develop a self-determined motivational orientation when participating in an activity that leads to the fulfilment of three basic psychological needs: autonomy, competence, and relatedness. Failure to meet them may result in negative outcomes such as depression and other pathologies (Vansteenkiste et al., 2010). In addition, people may seek to meet the needs in other ways. This may be satisfying,

but the satisfaction is only short-lived. Depressed caregivers may indulge in alcohol and substance abuse which would only exacerbate their conditions. A basic need, whether physiological or psychological is defined as an energizing state that, if satisfied, leads an individual towards good health and well-being, but if not satisfied, contributes to pathology and ill-being. These three needs are universal among ages, genders and cultures (Hull, 1943; as cited in Ryan & Deci, 2000).

Autonomy is perceived as having both a choice in and control over one's own behaviour, while relatedness is defined as having a sense of belonging toward others. In a study on adherence to medication by patients, Williams, Rodin, Ryan, Rollick, and Deci (1998) found that the more autonomous patients were, the more accurately and persistently they followed their regimen. This suggests the likelihood of FCGs having difficulty with autonomy because most are forced by circumstances to take care of their own. For example, most FCGs are women who take care of their spouses and children (Belasco & Sesso, 2002). Although this might be due to a traditional nurturer role that typifies the female gender, they may feel, as a result, that they have no choice in the matter. Curtailing their psychological freedom this way may lead to depression. In addition, other caregivers whom they have to deal with, including dialysis nurses, nephrologists and dieticians, may curtail FCGs' autonomy by the way they handle them. If they seem disapproving and controlling over the actions of the FCGs, this may hamper the meeting of this need and subsequently of the others.

Competence involves a feeling of being capable of a certain task. It is the psychological need to experience confidence in one's abilities to achieve something. FCGs are charged with complex tasks that come with ESKD. With frequent illnesses and hospitalizations that characterize ESKD, family caregivers' sense of competence is usually undermined especially when the illness is caused by poor dietary and medication adherence.

The FCG is then plagued by guilt and shame which only serve to attack different areas of their personality leading to depression. This was one of the intentions of the intervention in this study, namely to increase competence feelings among the caregivers.

Relatedness refers to the experience of reciprocal care and concern for significant others (Markland et al., 2005). FCGs experience a lot of challenges in the area of relationships. For instance, ESKD might make the patient difficult to manage as they experience a variety of problems such as detrimental side effects of their medications, immobility and associated fatigue, inability to work or go to school, sexual dysfunction, constant fear of death and dependency on a machine for life. They may also have clinical depression which is now widely recognized as the most common psychiatric problem in patients with ESKD and is considered second only to hypertension as a comorbid diagnosis in this patient group (Saeed et al., 2012). This profiles a difficult patient to deal with, by a caregiver who is, worse still, already depressed. Naturally, issues of interpersonal conflict are bound to occur, meaning that the FCG's basic psychological needs are interfered with. Indeed, the FCG has to contend with a double measure of two mental disorders, which shows the urgent need of a psychotherapy model which could help in alleviating the caregiver's burden.

The significance of these basic psychological needs is underscored by the fact that for people to experience an on-going sense of integrity and well-being or "eudemonia", the needs must be satisfied across the lifespan (Patrick & Williams, 2012). This is basically because the needs are considered as the essential nutrients for optimum functioning in all areas of human existence, mental health included (Ryan & Deci, 2000). Just as plants need sun, soil and water to grow, humans require these needs to be satisfied to promote functioning and to prevent illness. In view of that, the FCGs whose basic psychological needs are not met have ended up with depression and anxiety.

These psychological needs must be satisfied together, failing which the psychopathology might not be resolved. For instance, if the FCG is helped to feel competent and autonomous, but still has a problem with relatedness, they will still be depressed since not all the psychological needs have been met (Ryan, 1995). Worst still, when a conflict between the needs is precipitated, it either causes mental problems or worsens the already existing ones. For example, if an FCG feels their autonomy in caregiving is hampered by a poor relationship with the patient, it may lead to the onset or worsening of depression and anxiety for the caregiver.

Much as the three basic psychological needs are universal, they are fulfilled contextually, meaning that every culture meets them differently (Ryan, 1995). Sheldon (2012) found that the needs predicted positive emotion and life satisfaction (intrinsic motivation) to an equal extent within twenty different cultures, including African, Asian, European, Latin, and Australasian cultures. This study therefore endeavoured to find out the diverse cultural expressions of the three psychological needs among the participants. It meant, for instance, that differentiations in age, gender, social economic status, and cultural values of the caregiver resulted in the meeting of the needs in different ways depending on the environment that they were coming from.

Once the three basic needs are met, the FCG would have sufficient motivation to effect change. In the case of this study, it was the reduction of depression and anxiety symptoms. However, according to SDT, the conditions in the individual's social environment can hamper or facilitate this change. If the FCG's environment nurtures perceptions of competence, autonomy and relatedness, the FCG would move towards a unified sense of self and begin to develop personal resources to cope with the complicated task of caregiving. Conversely, if the perception is negative, the depressed state of the FCG would be negatively impacted and depressive symptoms may even worsen (Ryan & Deci, 2000).

In the light of the above discussion, the researcher as a therapist was charged with creating a sustainable and supporting environment for the participants (Markland et al., 2005). This was done in several ways. Firstly, it was by helping the client develop a meaningful rationale for engaging in caregiving. This meant reducing the feeling of being coerced into caregiving and the accompanying guilt, so that the FCG rationalized their role and got more fulfilment out of it. This was done by challenging distortions in their beliefs about their role. Secondly, they were helped by minimizing extrinsic controls of behaviour such as rewards or punishment. The FCGs were taught that extrinsic rewards may satisfy, but only for a short while and were taught to prioritise internal motivation.

Thirdly, there was an exploration of choices open to the FCG such as the awareness that they could choose what and what not to do hence facilitate them to begin the journey toward autonomy. Lastly, was the acknowledgment of the negative feelings the FCGs experience in caregiving. This called for empathic support of their expression of difficulties in their role. These interventions might support the FCGs needs for autonomy and subsequently competence. In this case, it was critical for the researcher in this study to establish rapport and ride on the therapeutic relationship for change to occur. These steps were referred to as “autonomy support” in SDT literature and they went a long way in enriching the application of the intervention in this study (Ryan, Lynch, Vansteenkiste, & Deci, 2011; Vansteenkiste et al., 2010). All this was accomplished as the therapists used everyday experiences to illustrate the lessons taught in the intervention (Appendix G).

Once the client feels autonomous, his or her sense of competence increases. This is because with autonomy, the motivation for change commences. The client is therefore ready to change and with the therapist providing skills and techniques of change, the client readily accepts them. As change occurs, the therapist gives positive feedback which in turn facilitates more change and a feeling of competence. The therapist should be deliberate in this process

which is referred to as “competence support” (Deci & Ryan, 2008). For the FCGs, as feelings of autonomy and competence are enhanced, they become motivated and symptom reduction is evidenced, making them even more motivated for their caregiving roles.

For the basic need of relatedness, SDT propounds the process of "relational support". This is achieved basically by the application of unconditional positive regard and involvement (Roth, Assor, Niemiec, Ryan, & Deci, 2009). In this way, the client feels significant and safe to proceed in therapy. The client must perceive the therapist as genuine and feel respected, understood and cared for in order to internalise the changes the therapy will be aimed at. SDT therefore maintains that in therapy, if the client is helped to attain the satisfaction of these needs, they will internalize the behaviour change that is required, which in this case, is the reduction of depressive and anxiety symptoms. The intervention planned in this case incorporated the techniques of autonomy support indicated above.

SDT anchors other theories including motivational interviewing (MI). This study borrowed techniques from these models in recognition of the significance of motivation for the success of therapy (Britton, Patrick, Wenzel, & Williams, 2011; Ryan et al., 2011). MI is a clinical method which was originally applied mainly in treating substance abuse. However, it is now applied in many other treatment domains, including depression (Markland et al., 2005). The similarity of MI and SDT is on the concept of autonomy. MI recognizes that client ambivalence plays a significant role in behaviour change, but also realizes that when the client is allowed the choice to change, they do so more easily than when forced. As a result, the idea is to roll with, rather than fight the client's resistance to change. In terms of SDT then, the therapist is to draw out the client's motivation and ideas of change. For this study, since depression is a loss of motivation, the researcher applied the rationale of MI: "the together looking at something" (Miller & Rollnick, 2002, p. 25). This is motivational interviewing where with a skilful set of questions and reflection, the client is/was drawn out

and encouraged to talk about change. Such an interaction is what initiates and maintains the process of change and therefore positive outcomes (Miller & Rose, 2009).

2.3.2 *Beck's Cognitive Theory*

Aaron Beck is a medical doctor who developed his theory of mental disorders, starting with depression in the 1950s. At the time, the prevailing theory was Freudian regarding depression as "introjection hostility". Freud called the symptoms of depression melancholia that he explained as a feeling of loss, but distinguished it from bereavement. In both cases, the patient would experience deep feelings towards an object of love. Beck said bereavement was understandable because there was a reason for the sad feelings. For melancholia, however, the patient would be deeply sad and angry with no apparent loss and worse still, would turn the negative feelings towards themselves. The melancholia in their wrong thinking mind would believe they had a loss, would blame themselves and would continue wallowing in this extreme sadness. Psychoanalysis was therefore the treatment of choice in the late 19th and early 20th Century as Freud's theory took ground. Indeed, it was largely the predominant theoretical framework for psychiatric disorders at the time.

In the middle of the 20th Century, however, many of Freud's followers departed from his beliefs and started regarding mental disorders without a deterministic viewpoint. Aaron Beck was the major player in this respect. In his 2008 article, he explains that at the time he began his work, there was a large amount of funding for research. He could easily afford to do whatever appealed to him. At the time, he was fascinated by depression. To him, it was an illness that defied the well-known principles of human nature, namely self-preservation, maternal instincts, sexual instincts and the pleasure principle. Depressed people acted against their own good and this paradox captivated him. Beck actually set out to prove that Freud's theory of depression (as wrongful processing of grief) was correct (Beck & Greenburg,

1994). However, his research led him to a different conclusion and the birth of a new theory of depression.

Beck's research therefore began with analysis of dreams as Freud would have had it, taking dreams as the deepest part of human beings. Beck analysed the dreams of depressed people and his findings surprised him; the dreams did not have hostility as presented by Freud. Instead, they contained themes of "loss, defeat, rejection and abandonment and the dreamer was represented as defective or diseased" (Beck, 2008, p. 969). Initially, Beck thought that these negative themes represented a masochistic tendency in the patients, but later realized that the patients would react positively to successful experiences and positive reinforcement. Therefore, he ruled out Freud's inverted hostility and the idea of masochism (which Freud had taught led to depression and which he referred to as "melancholia").

It was during this process that Beck's experiments began to reveal the basis for his cognitive model (Beck, 1967). He noticed that the dream content had the same themes as the patient's conscious cognitions. In other words, as the patient thought, they dreamt. They had exaggerated negative self-evaluations and beliefs about themselves even in their conscious states. Beck also noticed that these cognitions contained distortions and errors in the patient's interpretation of experiences and events. What finally clinched the cognitive model for Beck was when he helped the patient correct these distortions and in about 10-12 sessions the depression would lift.

After this initial breakthrough, Beck decided to make it his lifetime career to develop the theory further. He then observed that at the obvious level was the negativity that characterized the patient's interpretation of their experiences as revealed in their self-reports. The conspicuous themes in the reports were of hopelessness, demotivations, self-criticisms and suicidal ideations. The next level was what he called a "systematic cognitive bias" (Beck, 2008, p. 971). This was an aspect of information processing where the patient would give

selective attention to their negative interpretation of events, and in addition, they would block out any positive interpretations. This bias for the negative was caused by interference in the information process since it had been hijacked by "dysfunctional attitudes". Accordingly, depressive symptoms were mediated by these defective attitudes.

Following numerous laboratory experiments, Beck and his colleagues discovered what consisted of these attitudes. He named them "selective abstraction, overgeneralising, personalization and interpretational bias" (Clark & Beck, 1987, p. 15). These are enshrined in the person's cognitive structures (also called schemas). Schemas are negative lenses through which depressed people view the world; they reveal themes that include loss, separation, failure and worthlessness (Beck & Greenburg, 1994). These negative schemas become so dominating that depressed people cognitively interpret life only through them. In case of failure, even trivial ones, they interpret them as reflections of their inadequacy. They then experience "sadness, hopelessness, loss of motivation and regressive behaviour" (Beck, 2008, p. 970). The cognitive distortions resulting in the behavioural symptoms are what Beck referred to as the cognitive triad (Beck, 1995).

With time, Beck and his students had extrapolated this model to many other mental disorders including anxiety (University of Pennsylvania, 2014). In this regard, cognitive therapy proposes that it is not an adverse situation that leads to panic, fear, anxiety and worry but the way in which an individual thinks about it. Eysenck (1992, p. 19) quotes Beck and Emery (1985) as saying that the primary pathology in depression and anxiety is "the cognitive apparatus". By this they mean that there are defects in cognitions, be they unrealistic expectations or unreasonable attitudes. Thus, in the case of anxiety, the cognitive theory holds that irrational or dysfunctional ways of thinking about a particular event results in unhealthy fear and worry about that event or stimulus. In addition, Eysenck talks about distorted thoughts as emanating from deep beliefs of clients that are maladaptive and which

predispose them to depression and anxiety. They are also called schemas and when they interact with life stressors, then psychopathology occurs. The caregiving role of FCGs is considered a stressful burden, as shown elsewhere in this study which may result in the two mental disorders under study.

Cognitive therapy is thus aimed at identifying thoughts, attitudes and assumptions that create, exacerbate or maintain depression and anxiety. Some of these thinking patterns may be very obvious and conscious whilst others may be unconscious. However, they are easily elicited and identifiable with the correct interviewing techniques; particularly Socratic questioning which CBT applies routinely (Cully & Teten, 2008). Once identified, these maladaptive thoughts are assessed or challenged by asking whether they follow logical reasoning, whether or not they are based on any objective evidence and whether they are helpful or self-defeating and anxiety-provoking. They are then ultimately replaced by healthier, more evidence-based, logical cognitions or way of thinking. The healthier thinking styles are then practiced repeatedly and with different methods that enable people to develop a stronger level of conviction for the healthier ways of thinking (Adeusi, 2013; Clark, 2014; Hoffmann et al., 2012).

In this study, diagnosis of ESKD and the attendant lifestyle changes activated the schemas of the FCGs. As a result, the FCGs gave these experiences a negative and distorted interpretation which, unfortunately, was the caregivers' new reality. FCGs who were depressed, for instance, might have taken it as a personal failure when the patient got frequent illnesses, yet that is a regular feature of ESKD. Others might have felt crushed when the patient did not adhere to certain requirements, yet the patient was personally responsible, for instance, exercising. For that matter, this study intended to address depression among FCGs from the theoretical framework discussed below. Firstly, at the basic level, depression is lack of motivation to carry out the burdensome task of caregiving. This is as espoused by the self-

determination theory of motivation. In addition, although family caregivers may score highly for depression, it may be anchored or maintained by deficits in several other areas of their personality, for instance, anxiety, which was also the focus of this study.

It has been shown that depressed individuals have a cognitive style of being biased to the negative and against the positive (Wang, Brennen, & Holte, 2006). For example, people with depression have been shown to have automatic bias for negative self-appraisal compared to people without depression. Tucker and Luu (2007) found that people with severe depression were more likely than others to view their depression as being caused by failure to achieve their goals and live up to their potential. The lack of motivation in individuals with depression influences different aspects of behaviour and cognition. For example, people with depression struggle to work towards goals that they previously may have found rewarding. Furthermore, they are not able to engage in productive work, interpersonal relationships or hobbies, are often unable to positively engage in therapy, and their cognitions are usually severely and negatively affected (Fales et al., 2008).

2.2.2.1 Efficacy of CBT

Since Beck established CBT as a model of treatment, researchers have rigorously put it to the test to determine its efficacy for treatment of diverse mental disorders. Hoffman et al. (2012) doing a meta-analysis of these kinds of studies, did not make conclusive findings over the efficacy of CBT (including, in comparison with anti-depressant medication). They cited some studies that show CBT as superior to psychodynamic psychotherapy (Tolin, 2010). Additionally, Tolin (2010) also found CBT to be superior to psychodynamic therapy at both post-treatment and at six months follow-up, when depression and anxiety symptoms were examined together. Another study established that CBT was superior to relaxation techniques at post-treatment (Butler, Chapman, Forman, & Beck, 2006). However, Parker and Fletcher (2007) found that despite numerous clinical trials, CBT has not established superiority to

other methods. It appears then that until more research is done, its effectiveness should be held with the same weight as all other modalities of treatment. Tolin (2010) stated categorically that their study found CBT to be so effective and superior to other modalities that it should be considered a first-line psychosocial treatment of choice, at least for patients with anxiety and depressive disorders.

It is not contested that CBT is the most researched model of psychotherapy. As said above however, the jury is still out as to whether it is the most superior modality. The stance of being the superior modality has been attributed to publishing bias (Cuijpers, Smit, Bohlmeijer, Hollon, & Andersson, 2010). In addition, it has been said that most studies have erred in the area of methodology, particularly in sampling, which makes it difficult to generalize the results of the findings (Dubicka, Elvins, & Roberts, 2010). Lack of control groups and high attrition rates in the studies were found to disqualify the findings of CBT as being superior (Clark, Fairburn, & Wessely, 2008). Despite these criticisms though, there seemed to be more support for CBT than against it. In a review for meta-analysis of the effectiveness of CBT, Butler, Chapman, Forman, and Beck (2006) found large effect sizes for depression, generalized anxiety disorder, panic disorder with or without agoraphobia, social phobia, posttraumatic stress disorder, as well as childhood depressive and anxiety disorders.

According to Beck and colleagues, the above-said findings were that CBT was somewhat superior to anti-depressants in the treatment of adult depression (Beck, Steer, & Brown, 1998). In addition, CBT was equally effective as behaviour therapy in the treatment of adult depression and obsessive-compulsive disorder. It has also been found to be significantly effective as a group therapy. In a study where longitudinal data was taken from 2003 to 2013 for all patients treated with group CBT, the mean depression score dropped from 28.5 to 18.5, a drop of 10 BDI points (Thimm & Antonsen, 2014). The post-treatment score remained stable after three months of follow-up according to these scholars. At post-

treatment, 44% of the patients showed a significant improvement in depression, including 30% who recovered; at follow-up, the proportions increased to 57% and 40%, respectively. However, CBT is not indicated for severe depression and thus its exclusion from this study (Driessen & Hollon, 2011).

In the same vein, one of the studies sought to establish the efficacy of CBT in comparison to the new generation antidepressant medications. The study found no significant difference (Spielmans, Berman, & Usitalo, 2011). A study by Hollon et al. (2005) had established that CBT was the preferred modality since its effectiveness lasted beyond the treatment period and was effective in relapse prevention. There is, however, what appears to be a "war" between pharmaceutical companies that fund the drug research and practitioners of CBT who have vested interest in the modality. Accordingly, the publication bias between the two entities calls for integrity in research and publication (Cuijpers, Smit, Bohlmeijer, Hollon, & Andersson, 2010).

The above notwithstanding, CBT has been found to be effective in South Africa in treating depression among depressed HIV/AIDS patients (Lena, 2009). In an Ethiopian study it was found that CBT had reduced anxiety and depression symptoms in patients with breast cancer after twelve sessions (Hassanzade et al., 2012). In Kenya there seems to be a scarcity of studies applying culturally relevant cognitive behavioural techniques. Although a study by Papas et al. (2011) was not for depression, it tested CBT in a local context. Having culturally adopted the treatment among out-patient HIV positive patients in Eldoret to reduce alcohol use among HIV-infected out-patients, the baseline study found CBT to be highly effective. This current study hoped to achieve the success demonstrated by the above studies. It did not however, concern itself with the effect of antidepressant medication since such is outside its scope.

The cognitive model invariably uses treatment techniques from the behavioural school of psychotherapy. It is for this reason that it is referred to as cognitive behavioural therapy. One of the techniques is systematic desensitization which was applied in this study. The modality is the most widely used psychotherapy for fear-related disorders (Ayres & Hopf, 1998; Merrell, 2008), having a success rate of 80% (Sellnow, 2005). Desensitization is a treatment method which weakens the learned association between anxiety and feared objects or situations by strengthening another response, in this case relaxation, which is incompatible with anxiety. Anxious individuals learn to calm their fears through gradual exposure to them, but in the safe environment of relaxation techniques (Duboord, 2011).

Howenstein (2006) gave a history of the ground-breaking treatment model that Wolpe (1968) developed in the 1950s. Wolpe was a medical doctor who joined the South African army as a medical officer, working in a military psychiatric hospital. There he worked with soldiers who were suffering from "war neurosis", what is now referred to as posttraumatic stress disorder (PTSD). Wolpe and his colleagues first tried to treat the problem with medication but with only marginally helpful results. It is then that he decided to work on finding more effective means of dealing with the problem.

By conducting several animal experiments, Wolpe came up with the concept now known as desensitization. True to behaviourism, he reasoned that much of behaviour, both good and bad, is learned and can similarly be unlearned. Therefore, an individual with anxiety can be taught how to get rid of it and acquire more adaptive responses (Craighead & Craighead, 2003). This was a development of the theory of classical conditioning, a theory of learning, which postulated that people learn through association (Merrell, 2008). In the famous Pavlov experiment, it was observed that a dog naturally salivated at the sight and smell of food (Levond & Steinmetz, 2003). When other conditions accompanied the food, like ringing a bell, the dog did not salivate more. However, Pavlov kept ringing the bell when

the dogs were being fed (and actively salivating). Over the course of time, Pavlov found that the signal alone, even without his offering food, gradually caused the dogs to salivate. By association, the dogs had learnt a new behaviour. Similarly, individuals learn to associate certain situations with fear which may result in anxiety which in behavioural terms is referred to as a conditioned response.

Wolpe's technique is the reverse of classical conditioning and is referred to as counter conditioning. This involves reducing the intensity of a conditioned response (anxiety, in this case) by establishing an incompatible response (relaxation) to the conditioned stimulus (fear of insulin injections by family caregivers, for example). Wolpe found that anxiety symptoms could be reduced (or inhibited) when the stimuli to the anxiety were presented in a graded order and systematically paired with a relaxation response. Hence, this process of reciprocal inhibition came to be called systematic desensitization (Wolpe, 1958).

Wolpe's initial experiments were with cats which were given mild electric shocks accompanied by specific sounds and visual stimuli. Once the cats knew to equate the unpleasant shock with the images or sounds, the images and sounds created a feeling of fear. By gradually exposing the cats to the same sights and sounds with food being given instead of shocks, the cats gradually learnt to associate the sights and sounds with a pleasant stimulus and therefore "unlearned" their fear (Wolpe, 1958). Following the success of the experiment, Wolpe applied the same principle to the soldiers with PTSD. The process involved inducing the soldiers to a relaxed state and presenting them with a series of anxiety-provoking scenarios using their imagination. When anxiety was experienced during exposure, the image was terminated and the individual returned to a relaxed state. Exposure was then continued through the scenarios until the soldier no longer experienced anxiety in response to the anxiety-provoking situation.

FCGs experience various anxiety inducing situations related to their caregiving. According to Head and Gross (2003), the technique has been applied to groups with similar anxiety-related problems. Head and Gross refer to it as group desensitization and say that it is useful for treating multiple clients with similar anxiety disorders, allowing for time-effective intervention. This study used this method since the intervention was applied in groups.

Critics of the modality say that it is limited in its application due to its reliance on the client's ability to visualize (McLeod, 2008). The position is that some people are just not able to use their imagination and this could render the treatment ineffective. In addition, McLeod states that it is too lengthy a treatment. However, Howenstein (2006) examined its use in diverse contexts and demonstrated its success in treating many phobias, and general fears including, but not limited to, fears of: going to school, injections, flushing the toilet and going to bed among children. Among adults, systematic desensitization has been successfully used to treat anxiety comorbid with other disorders. Examples include individuals with severe autism (Lang, Maloney, Delaune, & Amidon, 2011), obsessive compulsive disorder (Foa, 2010), and performance anxiety in pianists (Appel, 1976). It would be useful in the present study because it had been expected that the FCGs would have a comorbidity of anxiety and depression (Hirschfeld, 2001; Zhiguo & Fanf, 2014).

The technique is applied in three steps (Wolpe, 1990; as cited in Head and Gross, 2003). The first one involves training the client relaxation techniques which means the client is taught how to reduce body tension in a systematic way. Relaxation is critical because it is the antagonist that inhibits anxiety. Furthermore, it calms the client so that he or she can participate better in the exposure process. The client learns to relax and breathe properly in daily life and not just in the therapy sessions. The technique for relaxation used depends on the therapist's choice from a repertoire of known techniques (Sellnow, 2005). This study used the four-step relaxation model provided by Head and Gross (2003) as seen in Appendix I.

Each step lasted 10-15 seconds. At the end of the relaxation session, the FCGs were asked to rate their subjective units of discomfort (SUD) which ranged from 0 to 10. Total relaxation was achieved once the last FCG had reached 0 rating.

The FCGs sat comfortably as the therapist gave instructions in a low calm voice. Relaxation training sessions may go up to seven, depending on the individual's progress and therapist's preference. This study did four sessions of relaxation training since participants would be and were asked to continue practicing at home. (Leahy, 2005). This was repeated throughout until the last exposure treatment session. Step two involved generating a hierarchy of anxiety-provoking situations from the lowest to the highest level. Normally, this is created from the information obtained from the initial clinical interview and assessment of the client. In this study however, this was retrieved from the information clients brought into the group and some items from the BAI test. The situations were then ranked by the participants in the group with the most aversive listed in the top of the hierarchy.

Step three was imaginal exposure where the participants confronted their fears. Each exposure session started and ended with the group in a relaxed state with a SUD rating of 10 or less. The therapist began by presenting a neutral scene which was typically pleasant and served two purposes, Firstly, it was to orientate the participants to the exposure process as the therapist assessed their capacity for visualizing. Secondly, the neutral scene also served as a control as the therapist would use it to bring the group back to that scene when a participant would experience anxiety. By raising a finger, a group member indicated to the therapist that they had visualized the scene. This was done for approximately 10 seconds after which the group was asked to terminate the scene and the SUD rating was taken. If the rating was 10 and below, then the situation with the lowest level of anxiety was presented in the same manner of relaxation, presentation of situation, visualization for about 5-7 seconds and then the client was asked to terminate the scene. The SUD rating was taken and the group returned

to a relaxed state. Additional presentations were made of the same scene until a SUD rating of 0 was attained. Only then was the next anxiety provoking scene introduced.

In one session of 30 minutes, three to four scenes were presented, depending on the group progress. Each new session began with the most recent item to receive a SUD rating of 0. Whenever any anxiety-provoking situation recurred, it was presented again until the last client in the group achieved a rating of 0 again. The groups were encouraged to practice relaxation and exposure at home with the situations that had been presented during the therapy. The therapists warned that the hierarchies not covered in group therapy should not be attempted at home. This was because they might have tried to face a fear without proper relaxation for which the therapists would be required. Administration of hierarchy items was usually determined by the SUD progress rate of the slowest group member.

2.3 General Literature Review

2.3.1 *Overview of Caregiving of ESKD Patients by their FCGs*

It is well-known that many caregivers spend a lot of time with their patients. Tong, Sainsbury, and Craig (2008) stated that it is becoming increasingly common to have patients of renal diseases rely on non-professionals (including family members and friends) for their health care needs. Due to the stress described earlier, Tong et al. (2008) found that these non-professional caregivers "can experience stress, depression, lack of confidence and poor quality of life. Yet, the needs of caregivers are often neglected and under-prioritized" (Tong et al., 2008, p. 3962).

The needs of family caregivers are significant for both the young and the old patients. This is the case in these extreme age groups because the patients are mentally unable to provide the necessary treatment for themselves, and therefore require a caregiver to assume major responsibility for their treatment. Moreover, there are diverse issues that caregivers must deal with. Receiving the diagnosis occurs first. If poorly delivered and without

psychologically preparing the family, the diagnosis may cause distress to the patient and subsequently to the FCG. Thereafter, the FCG together with the patient and nephrologist must evaluate treatment options (Latos & Lucas, 2011). If dialysis is chosen, the choice must be made for the beginning treatment with its attendant initial difficulties, for instance, fluctuations of blood pressure. This means that numerous lifestyle adjustments have to be made, which may include planning for transportation to the dialysis centre (hospital) upto three times a week, drastic changes in diet and plans for fluid intake balance (Emanuel, Fairclough, Slutsman, & Alpert, 1999). Understandably, these are difficult adjustments for FCGs to cope with, particularly without support from the medical professionals.

Admissions in hospital are frequent with patients on dialysis, which unfortunately may be attended by numerous administrative problems between family caregivers, patient, doctors and the dialysis unit in the hospital (Castner, 2011). To cap it all, dialysis is an expensive treatment and the attendant medications required raise the cost even higher. According to one of the organisations that deal with support for kidney patients and their caregivers, the cost of dialysis per month in a public facility in Kenya is Ksh. 60,000, which translates to at least six times the minimum monthly wage (HAKI Foundation, 2016) . This cost is highly prohibitive for most Kenyans.

In the private sector where dialysis costs an average of Shs 7,000 per session, this translates into Shs. 84,000 per month. This is equivalent to approximately US \$ 10,000 for private and 7,200 for public facilities. Though not comparable with dialysis in developed countries (approximately US \$60,000 in the US and UK), it is still too steep for patients and their families in low-income countries where there is little insurance and government assistance (Khanna, 2009). This is in agreement with a study done for the cost of dialysis in low and middle income countries which put the cost between US \$ 3,424 to US \$ 42,785 (Mushi, Marschall, & Fleßa, 2015).

If the patient finally dies, the carer at that point also has unique grief and bereavement issues. Given all the above, it is little wonder that studies are calling for more support for the ESKD caregiving community. There is need for psychological treatments specifically modelled for this specific population, which confirmed a need for this current study. FCG demographics are said to be significant in how they correlate with the mental disorders that result from the caregiving burden. The most pertinent are age, gender, marital status, social economic status and employment (Byers, 2008). In addition, Byers found education status and hours spent caring for the patient to be additional risk factors for the FCG to develop mental disorders. Saeed, Aizaz, Shakoor, and Khanwal (2012), in a study in their renal clinic, found that low household income, unemployment and the marital status of the FCGs were predisposing factors for FCGs developing depression.

Depression has been found to be generally common among caregivers (Chapman & Strine, 2005). The FCG burden further increases significantly as functional and cognitive impairments imposed by the chronic disease limit the ability of the patient to care for himself or herself. Other variables associated with caregiver burden include the relationship between the caregiver and patient, behavioural and psychological symptoms displayed by the patient, gender and adverse life events. Therefore, an inter-dependence of these factors were assessed to measure the impact of the caregiver's burden in terms of depression and anxiety

The number of patients with chronic kidney disease is expected to grow at the fastest rate in the poorest parts of the world, but a strong association is seen between low levels of economic development and reduced availability of renal replacement therapy (Jha et al., 2013). Renal disease is three to four times more frequent in Africa than in developed countries (Naicker, 2009). It is estimated that by the year 2030, more than 70% of patients with kidney failure will be residents of developing countries. This is attributed to poor leadership in the region which has resulted in poverty. It has also led to lack of resources both

material and manpower to detect and cope with ESKD (Bamgboye, 2006). Consequently, the caregiver burden in Africa is much bigger (Barsoum, 2013). Further, it has been associated with depression and anxiety in FCGs of renal patients (Gayomali et al., 2008).

The situation in Kenya looks grim according to medical experts. It has been reported that 10% of Kenyans suffer from kidney and other diseases like diabetes mellitus and hypertension that may lead to renal failure (Kenya Renal Association, 2015). Another study indicated that twenty million people are affected by renal disease currently (Haki Foundation, 2016). This demonstrates the extent of the family caregiver burden in the country and the necessity of psychotherapy to support FCGs. This study, therefore, proposed to use the arm of cognitive behavioural theory propounded by Aaron Beck known as cognitive restructuring or thought challenging. Some participants in this study had developed phobias as a result of their caregiving role. To reduce the symptoms of these phobias the study applied the Classical Conditioning learning theory approach by applying Systematic Desensitization which is also an offshoot of CBT (Head & Gross, 2003). It is a method that helps the client face their biggest learned fear gradually rather than immediately and which can traumatize the client.

2.3.2 Depression and Anxiety

According to the World Health Organisation (WHO, 2012), depression is a common illness worldwide. Depression is not the usual mood fluctuation caused by everyday life, but a serious mental health condition. It can cause the affected person to suffer greatly and function poorly at work, at school and in the family and worst of all it can lead to suicide (APA, 2013). In this connection it has been noted that suicide results in an estimated one million deaths every year out of the 350 million people affected by depression WHO (2012).

Although there are known, effective treatments for depression, fewer than half of those affected in the world (in some countries, fewer than 10%) receive such treatments (WHO, 2012). Barriers to effective care include a lack of resources, lack of trained health care providers, social stigma associated with mental disorders and inaccurate assessment. At the same time, the burden of depression and other mental health conditions is on the rise globally. A World Health Assembly resolution in May 2012 called for a comprehensive, coordinated response to mental disorders at country level. This study hoped to address this deficit among family caregivers of patients with ESKD in this country.

Due to this worrying trend, WHO has prioritized depression as one of the conditions covered by WHO's Mental Health Gap Action Program (mhGAP) (WHO, 2012). The Program aims to help countries increase services for people with mental, neurological and substance use disorders through care provided by health workers who are not specialists in mental health. The Program asserted that with proper care, psychosocial assistance and medication, tens of millions of people with mental disorders, including depression, could begin to lead normal lives, even where resources are scarce. It is not clear whether the Kenyan government has plugged into this initiative. It was hoped that this study could join in this effort and fill the obvious gap of screening and treating this disorder.

According to The American Psychiatric Association (APA, 2013), there are five known depressive disorders. They are: disruptive mood disorder, persistent depressive disorder also called dysthymia, premenstrual dysphoric disorder, substance abuse induced depressive disorder and depressive disorder due to another medical condition. The DSM 5 identifies the major depressive disorder as the classic one and it is the focus of this study. It is characterised by either or both depressed mood and loss of interest or pleasure. Depressed mood must be present most of the day, nearly every day. Other features that may be present include fatigue, which is usually the presenting problem.

Sadness may not be readily admitted, but will be picked up by observing the non-verbal communication during the interview with FCGs. The individual may experience fluctuations in weight as well as poor vegetative states (insomnia/hypersomnia, increase/decrease in appetite). In addition, the person will experience feelings of worthlessness, excessive or inappropriate guilt as well as difficulty in concentration, indecisiveness or diminished ability to think. There may be also recurrent thoughts of dying and suicidal tendencies. The diagnostic criteria exclude major depression if these symptoms arise from another medical disorder, including substance abuse. The symptoms must also impair normal functioning of the individual.

Anxiety disorders are characterized by excessive fear and unrealistic worry about everyday tasks or events, or may be specific to certain objects or rituals. Fear has been said to be an emotional response to real or perceived danger (APA, 2013). Anxiety or worry is an anticipation of future threat. There is usually a coincidence of these states leading to autonomic arousal or muscle tension. These disorders have been said to be very common yet remain undiagnosed for most people (Stein, 2004).

The DSM-5 identifies several types of anxieties (APA, 2013). These are separation anxiety, social anxiety, selective mutism, panic disorders, specific phobias and generalized anxiety. Specific phobias include fear of blood, injections, transfusions and other medical care. It is expected that due to the nursing care which includes giving insulin injections where the patient is diabetic and general dressing of the frequent wounds patients get and the frequent hospitalizations of ESKD patients, FCGs may have developed these and other fears (Goldberg & Salloway, 2011) .

In addition, the caregiving role may result in generalized anxiety disorder (GAD) for FCGs (Verama, Sharma, Balhara, & Mathur, 2011). It is characterized by excessive worry and anxiety occurring on most days for six months. The worry is difficult to control with the

caregiver feeling restless, easily fatigued, having difficulties in concentrating, irritability, muscle tension and sleep disturbance (APA, 2014). Prevalence for GAD worldwide is rated as being between 1-22%. Its diagnosis is based on cultural understanding and recovery rates are low. Treatment differs from culture to culture particularly in low income countries where there are few experts trained in its treatment (World Federation for Mental Health, 2008). Due to the role of family caregivers, the researcher expected to find a higher prevalence rate for GAD than for any other anxiety disorders.

Generally, anxiety disorders have a prevalence of between 6-12%. There is higher incidence in North America than in Europe (Stein & Steckler, 2009). The researcher could not find studies of prevalence in the African region. Given that patients of ESKD have a high incidence of mental illness, FCGs may also develop anxiety apart from guilt, depression and fear (Swaroop et al., 2013). This study therefore applied systematic desensitization on the phobias mentioned above and any other that was related to the caregiving role. This is the profile of the FCG that this study was looking at. Studies show that for most individuals, comorbidity of depression and anxiety is common (Goldberg & Salloway, 2011; Saeed et al., 2012; WHO, 2012). Thus, the researcher being reliably informed by these studies, preferred to study these two disorders to any other.

2.4 Empirical Literature Review

2.4.1 *Depression and Anxiety*

It is noted that in an effort to give the best care, family caregivers often work at the expense of their own physical and emotional needs. As a result, they end up being strained with feelings of anger, anxiety, sadness, isolation and exhaustion. Due to these feelings, many may start feeling guilty which if unchecked with proper psychosocial support, may develop into depression (Family Caregivers Alliance, 2014).

Numerous studies indicate that the incidence of depression among dialysis patients is high (Avsar et al., 2013; Cukor et al., 2007; Rai et al., 2011; Shadaifat & Manaf, 2012). Despite this, not much literature has been written on the severity of depression among family caregivers (Belasco & Sesso, 2002). Belasco's research sought to describe caregivers' characteristics and evaluate the state of their caregiving burden. They found that the prevalence of depression among family caregivers was 32% in the United States. A later study by Zarit (2006) found that 40% to 70% of family caregivers had clinically significant symptoms of depression; approximately a quarter to half of these caregivers meeting the diagnostic criteria for major depression. In terms of severity, Al-Zahrani, Bashihab, Ahmed, Alkhodair, and Al-Khateeb (2015) found caregivers of patients hospitalised with chronic illnesses, ESKD included, had high levels of depression and anxiety with over 70% of their 357 sample testing positive for symptoms.

Evercare (2006) did a national survey that put the prevalence of mild, moderate and severe depression at 91%. Of these, 72% reported as not seeking help for their symptoms while 63% reported having poor eating habits compared to non-caregivers. In addition, 58% indicated worse exercise habits than before caregiving responsibilities. It was clear then that family caregiving altered the caregivers' lives in a dramatic fashion, mostly in a negative sense, thus leading to depression.

The caregiving role is regarded as involuntary causing the caregivers to feel guilty for feeling burdened by their caregiving responsibility. Those that had depression before their caregiving role began confessed that their caregiving role had made their mental health worse, especially depression. In another study, 20% of employed female caregivers who were over 50 years old reported symptoms of depression compared to 8% of their non-caregiving peers (Metlife, 2011). In the United Kingdom, nine out of every ten patients of chronic illness, ESKD included, were taken care of primarily by family members (Farrington,

Rao, & Steenkamp, 2006). The onset of ESKD and subsequent recommendation of dialysis as a treatment option involves a change in lifestyle for both patients and close persons (Low, Smith, Burns, & Jones, 2008). The changes are so critical that they lead to depression especially in spouses of the patients. Even before endline stage disease is reached, as renal function deteriorates, patients frequently require additional support, thus demanding ore from family members.

Citing proceedings of the National Academy of Sciences, the Caregiver National Network (2014) stated that FCGs experiencing extreme stress have been shown to age prematurely. The Network asserted that this level of stress can take as much as 10 years off a family caregiver's life. Shultz and Sherwood (2008) found that family caregivers suffered depression, anxiety and stress from their caregiving responsibilities. Evidence of these was positive symptom checklists and the fact that many such caregivers they were on anti-depressants and anxiolytic medications. However, the study did not give a prevalence of the depression among the caregivers.

Studies from Canada indicated that one in eight adults provide care for a chronically ill family member (Cameron, Cheung, & Stewart, 2002). Some family caregivers are full time in caregiving while others work outside the home. Some live with the patients while others live away, but whatever the case, some consequences of caregiving have been identified (Turcotte, 2013). In terms of psychological well-being, both Cameron et al. (2002) and Turcotte (2013) have found that the burden of caregiving introduces lifestyle changes in the caregivers' lives that limited their ability to participate in valued activities and interests resulting in emotional distress. They called for appropriate psychosocial interventions.

In terms of caregiver psychological state, Celik, Annagur, Yılmaz, Demir, and Kara (2012) conducted a study to determine and compare the quality of sleep, quality of life, and anxiety and depression symptoms reported by dialysis patients and their family caregivers.

They found that family caregivers do suffer adverse psychological effects and that they slept significantly poorer than the patients and found high levels of depression and anxiety among the family caregivers. Their study concluded that there was need for psychological interventions to help caregivers cope better. Avsar et al. (2013) did a study with similar objectives, but this time considering sleep quality, anxiety and overall burden between patients on dialysis and their family caregivers with caregivers of patients who had had a kidney transplant. The latter patients had received the treatment for ESKD but they still required keen care by family. This study found that family caregivers of dialysis patients had significantly higher rates of depression and anxiety. They slept worse and their caregiver burden scores were significantly higher (almost three times more) than those of caregivers of transplanted patients.

A Pakistan study (Saeed et al., 2012) measuring the depression among renal patients on dialysis found a high incidence of depression among the patients. This impacted on the family caregivers whom the study found had a prevalence of depression of 33.4%. The study also noted the paucity of studies on depression among family caregivers. In India, the prevalence of family caregiver depression was 31.9% (Rai, Rustagi, & Kohli, 2011). This study correlated depression and certain bio demographics, namely low monthly income, being on dialysis for more than one year and unemployment of family caregivers. The study found that depression was significantly more in caregivers with these qualities. In addition to the above, it has been shown that many depressed and anxious caregivers tend to take alcohol to try to alleviate the symptoms of the mental disorders (Algeria, Hasin, Shang-Min, Davies, & Blanco, 2010).

Studies on gender-related differences in depression and anxiety have shown that women are more susceptible to these disorders than men. For anxiety, females are twice as likely to suffer anxiety more than males (Byers, Yaffe, Covinsky, Friedman, & Bruce, 2010;

McLean, Asnaan, Litz, & Hofmann, 2011). It has been found that of the estimated 57 million people suffering from anxiety disorders in the United States of America, two-thirds are women (Harvard University, 2008). In terms of depression, the APA states that women are approximately two times more likely than men to suffer major depression and dysthymia and depression is deemed as the most significant mental health risk for this gender (APA, 2016).

In Sub-Saharan Africa, little is researched about kidney disease; therefore there is scanty information on the family caregiver mental well-being (Stanifer, Jing, Helmke, Mukerjee, & Naicker, 2014). However, it has been established that the prevalence of ESKD here is due to the high incidence of ill managed hypertension and diabetes due to insufficient medical care. Poor medical care is explained by a scarcity of medical personnel contributed to significantly by brain drain and untrained personnel (Naicker, 2013). Accordingly, diabetes and hypertension were said to be the leading cause of ESKD. In South Africa, where there is a Renal Registry, records show 21% of kidney patients have ESKD and are on dialysis (Naiker, 2009). A World Bank report (2014) estimated that by 2030, more than 70% of patients with end stage renal disease will be living in low-income countries, such as those in sub-Saharan Africa.

Although the foregoing studies did not establish the prevalence or severity of depression and anxiety among family caregivers, the information they gave had an implication on the caregiving burden. There are no renal registries in other African countries out of South Africa which makes it difficult to estimate the prevalence of ESKD. However, information available estimates it to be 200-300 per million of the population (World Bank, 2014). Assuming that each patient has one caregiver per, there may be an equal number of caregivers. The prevalence and severity of depression and anxiety among these caregivers therefore needs to be established in order to appreciate the need for treatment.

Family caregiving studies for patients with ESKD have tended to measure quality of life (Shimoyama et al., 2003). The few cited above that depart from this are more the exception than the norm. They have used various types of instruments with one of the most commonly used being the Zarit Burden Interview (Rees, O'Boyle, & MacDonagh, 2001) and the WHO QOL-100 (Li, Young, Xiao, & Zhou, 2004). These tools tend to establish the individuals' "perceptions of their position in life in the context of the culture and value systems where they live and in relation to their goals, expectations, standards and concerns" (WHO, 1997, p. 1). This is a generalised and overall state of the caregiver burden. It is not a measure of mental well-being particularly in terms of specific mental disorders. Further, several studies have even sought to measure quality of life among the patients and the caregiver together. The result is that family caregivers have tended to receive a little more than a mere mention in the studies as the patient remains the primary focus (Avsar, et al., 2013; Belasco & Sesso, 2002; Shadaifat & Manaf, 2012). Therefore, it is clear that there is need for studies to specifically establish the prevalence and severity of depression and anxiety, and not just quality of life.

2.4.2 Comorbidity of Depression and Anxiety

This study also sought to find out the incidence of comorbidity of depression and anxiety as it would impact on the carrying out of the intervention proposed. Studies have shown that comorbidity is highly prevalent in that more than 70% of individuals with depressive disorders also have anxiety symptoms. In the United States comorbidity is 50% prevalent (Hirschfeld, 2001), while in China, 69% of patients with depressive disorders also have symptoms of anxiety (Zhiguo & Fanf, 2014). In a large cohort study in Netherlands, it was concluded that due to the high incidence of comorbidity of depression and anxiety, the two should be routinely assessed so as to fashion out effective treatment plans (Lamers et al., 2011).

Comorbidity is assessed by the degree of overlap between depressive and anxiety symptoms either by measuring the severity of anxiety symptoms in individuals who meet diagnostic criteria for depression or by determining whether or not an individual with depression simultaneously meets criteria for an anxiety disorder (Zhiguo & Fanf, 2014). This study applied the latter mode as participants were assessed for both disorders and those found to have met the criteria for both (mild-moderate) according to the BDI and BAI were said to have comorbidity.

2.4.3 Socio Demographic Characteristics of Family Caregivers

2.4.3.1 Marital Relationships

Studies have shown that the relationship of the caregiver does determine the predisposition of the family caregiver to depression. This is because a diagnosis of ESKD leads to deterioration in family relationships (Belasco & Sesso, 2002). According to Saeed et al. (2012), when the caregiver is a spouse, he or she is more predisposed to depression than if they were another family member. Further, depression has been shown to reduce marital satisfaction in the couple (Pruncho, Wilson-Genderson, & Cartwright, 2009). In addition, a vicious cycle has been observed in cases where the spouse gets depressed due to caregiving duties, and this brings about poor outcomes for the patient in terms of depression as well. This depresses the spouse even further and the cycle continues (Danecker, Kimmel, Ranich, & Peterson, 2001). Like most of the other studies, this one calls for psychosocial interventions for the caregiver in order to break the cycle.

An Indian study showed that marital stress resulted in depression in both spouses (Khaira, Mahajan, Khatri, Bhowmik, Gupta et al., 2012). For the patient, it partly resulted from the illness while for the spouse depression arose from the caregiving role. However, the depression in the patient was partly explained by the spousal depression and had a direct

correlation. Accordingly, the study found that the social support that is culturally available in Indian joint families led to lesser depression and more marital understanding.

2.4.3.2 Age of Caregiver

In terms of age, it appears that the older the caregiver, the more likely it is for them to have depression. Caregivers over 55 years of age are 20% more likely to have depression than their younger counterparts (Evercare, 2006). The average age of FCGs seems to be between 36-60 years (Alnazy & Samara, 2014).

2.4.3.3 Age of Patient

Caregiving studies in the West have focused mainly on elderly patients. This could be because the prevalence of ESKD is higher in older patients than in the younger. For example, in the UK, 20% of patients starting dialysis were between 75-84 years old in 2001 (Levy, Chambers, & Brown, 2004). Citing a Kidney Endline of-Life Coalition report, Dannelke (2011) says that 45% of the more than 320,000 patients receiving dialysis therapy in the United States were over the age of 60 and that the growing segment of dialysis population was among patients 75 years and older. The situation is different here in Africa. Studies have shown that CKD up to the ESKD stage affected young adults in the 20-50 age groups (Naiker, 2010). This is due to the fact that there are many diseases that when poorly managed may predispose individuals to ESKD.

Diabetes and hypertension are said to be well managed in the West and patients only succumb to kidney disease due to old age (Belasco et al., 2006). It is no wonder that anecdotal evidence suggested that family caregivers in Africa are more predisposed to depression when their loved one dies because they are more likely to be in the productive phase of life. At this young age, the patient is likely to be the sole breadwinner of the family. As a result, the diagnosis of ESKD and the need to do dialysis may shock the family finances

and relationships. The imminent demise of the patient may portend financial loss and struggle for survival. For this reason, studies are needed in Africa to generate indigenous solutions.

2.4.3.4 Social Economic Status

A study by Tong, Sainsbury, and Craig (2008) assessed how the social economic status of the family caregiver was associated with caregiver depression. It looked at factors of age, marital status, and income as well as how they correlated with caregiver depression. The finding was that the more self-sufficient the patient and caregiver, the lower their depression as measured by Beck's Depression Index (BDI), which is a commonly used instrument in measuring depression. In this connection, lack of employment has been found to be significantly linked to emotional disorders like depression and anxiety. Apart from the financial benefit, employment has been said to be useful to caregivers because it acts as a buffer and distraction to emotional distress (Buyck et al., 2011; Tuithof, ten Have, van Dorsselaer, & de Graaf, 2015). In this regard, another study concluded that patients and family caregivers need psychosocial support in order to reduce psychological stress and pointed out that this task was the subject of future research Tong (2008). For that reason, this study was timely to fill this gap among others.

2.4.3.5 Gender Differences

Belasco and Sesso (2002) noted that it was mostly women, either wives or daughters who were family caregivers. In a later study, Belasco et al. (2006) found that female caregivers were 78%. This is similar to another study by Arechabala, Catoni, Palma, and Barrios (2011) in which 75% of their sample was female. Similarly, El- Karmalawy et al. (2014) whose study was on caregivers of children with ESKD found that mothers were 78% of the caregivers. The authors noted that females were typically the caregivers of children in most societies, a role they may not be able to resist due to cultural perspectives. Having more

women as caregivers was also found by Elmadi et al. (2011) in a paper on caregiving in general. These authors excluded males in their study, citing the reason that culturally men were expected to be the breadwinners and if they had to provide care, this was likely to be part-time as most of their time would be dedicated for working outside the home. This implies that there is a cultural expectation for women to constitute the bulk of caregivers compared to their male counterparts. In a literature review spanning many studies, Low et al. (2014) delved into sixteen studies on FCGs of ESKD patients and found that the samples in these studies were “predominantly female”.

A report by the WHO (2016) stated that gender differences have been seen in the rates of common mental disorders, that is, depression, anxiety and somatic complaints. Women have predominance in these disorders which affect approximately 1 in 3 people in most communities. The report also noted that unipolar disorder, which is predicted to be the second leading cause of global disability by 2020, is twice more common in females than in males. The report noted that depression was not only the most common women's mental health problem, but may be more persistent in women than in men and called for more research. Consequently, this female dominance needs to be addressed as it is deemed to be a serious global public health problem by the WHO (2016). However, studies do not appear to show who cares for female renal patients. There has been an indication that male caregivers are on the rise with a study showing that they are gaining on females and would be at 40% (Elenbecker, Samia, & Cushman, 2008). This study intended to look into this particular characteristic of gender, which is crucial for treatment planning.

In terms of patients on dialysis, it appears that they are predominantly male. This was confirmed by a big study done on dialysis patients in Europe spanning twelve countries. The study was a longitudinal one that involved a large sample of 35,964 patients that set out to find gender representation among the patients. It emerged that in all age groups there were

more males than females on dialysis (59% versus 41% overall) (Hecking et al., 2014). This current study again confirmed the prevalence of more men than women. An explanation for this that has been advanced could be the male dominance is biological differences between the genders (Carrero, 2010; Kunitoshi, 2008). In Kenya, the high rate of alcohol consumption among males could explain this seeing as alcohol dehydrates the body which may affect kidney function (Hobson & Maughan, 2010; NACADA, 2012).

2.4.3.6 Residence with the Patient

Most FCGs live with their patients, particularly if they are spouses. Evidence would suggest that constant exposure to the patient and the caregiver burden may lead to depression and anxiety (Family Caregiver Alliance, 2012). There are other FCGs who do not live with their patients and have been referred to as non-resident or “away” FCGs (Family Caregivers Alliance, 2014). Studies have shown that away FCGs also do suffer from depression and anxiety though not to the same severity as resident ones. Not being the in-house carer can lead to feelings of guilt for not catering to the patients’ daily needs and this may also lead to depression (North Dakota State University, 2003). In addition, not knowing what is happening to the patient can cause the non-resident caregiver to have symptoms of anxiety.

Undeniably, not being with the patient can be disruptive to the caregiver who lives away (Dawood, 2007). In her study on caregiving for dementia patients, Dawood noted that this is so because the caregiver’s normal schedule becomes disordered. He or she may have to take time off from work and, if employed, it becomes increasingly difficult to obtain time off as employers can begin to regard such time off as truancy. Indeed many employed caregivers often suffer many work-related struggles due to their "second careers" as caregivers. Sixty-seven per cent of family caregivers report conflicts between caregiving and employment, resulting in reduced work hours or unpaid leave (Family Caregiver Alliance, 2009). If in business, time off may translate to loss of opportunities leading to income loss.

The fact that the caregivers have to frequently travel to reach the patients further increases their distress and travel costs.

Indeed, it has been shown that there are serious financial implications for a caregiver who lives away from the patient according to the AARP Public Policy Institute (2012). From this report, it emerged that “long-distance” caregivers had the highest annual expenses (\$8,728) compared to resident caregivers (\$5,885) or those who cared for a loved one nearby (\$4,570). It is not clear from this cited research what “nearby” meant, but according to the Family Caregiver Alliance (2012) the proportion of caregivers who reported to be living less than 20 minutes from the homes of the patients had increased in the years between 2009 and 2012. In 2009, that category was only 44% compared to 51% in 2012. Clearly, it is advantageous to live near the patient in financial terms.

2.5 Conceptual Framework

This section describes the variable or key constructs in the study and the relationships between them. The independent variable was the model of therapy (CBT) that the researcher applied to treat depression and anxiety in family caregivers of ESKD patients, who were the exposure variable. The outcome variable was the reduction in the symptoms of depression and anxiety in the FCGs who were exposed to the intervention and were referred to as the experimental group. The study took cognisance of the fact that there were extraneous variables made up of characteristics of the FCGs that might affect the outcome variables. Effect modifiers were those kind of variables which included the age, gender and social economic status of the FCGs. For example, in the case of gender it was important to find out whether being a male or female FCG was associated with depression and anxiety.

Age of patient, relationship with the patient, length of the period of care, educational level and religion were other extraneous variables that had the potential to affect the outcome and were considered as confounders. The study measured these variables and found out their

relationship to the treatment and outcome. For example, how would the fact that the patient was a child, a middle aged adult or an elderly person affect depression and anxiety scores in the FCG? This study therefore measured all these variables and had several data sets showing the social demographic characteristics of the FCGs; depression, anxiety as well as depression and anxiety comorbidity scores, at baseline, midline and endline timelines.

Figure 2.1 illustrates the conceptual framework of this study.

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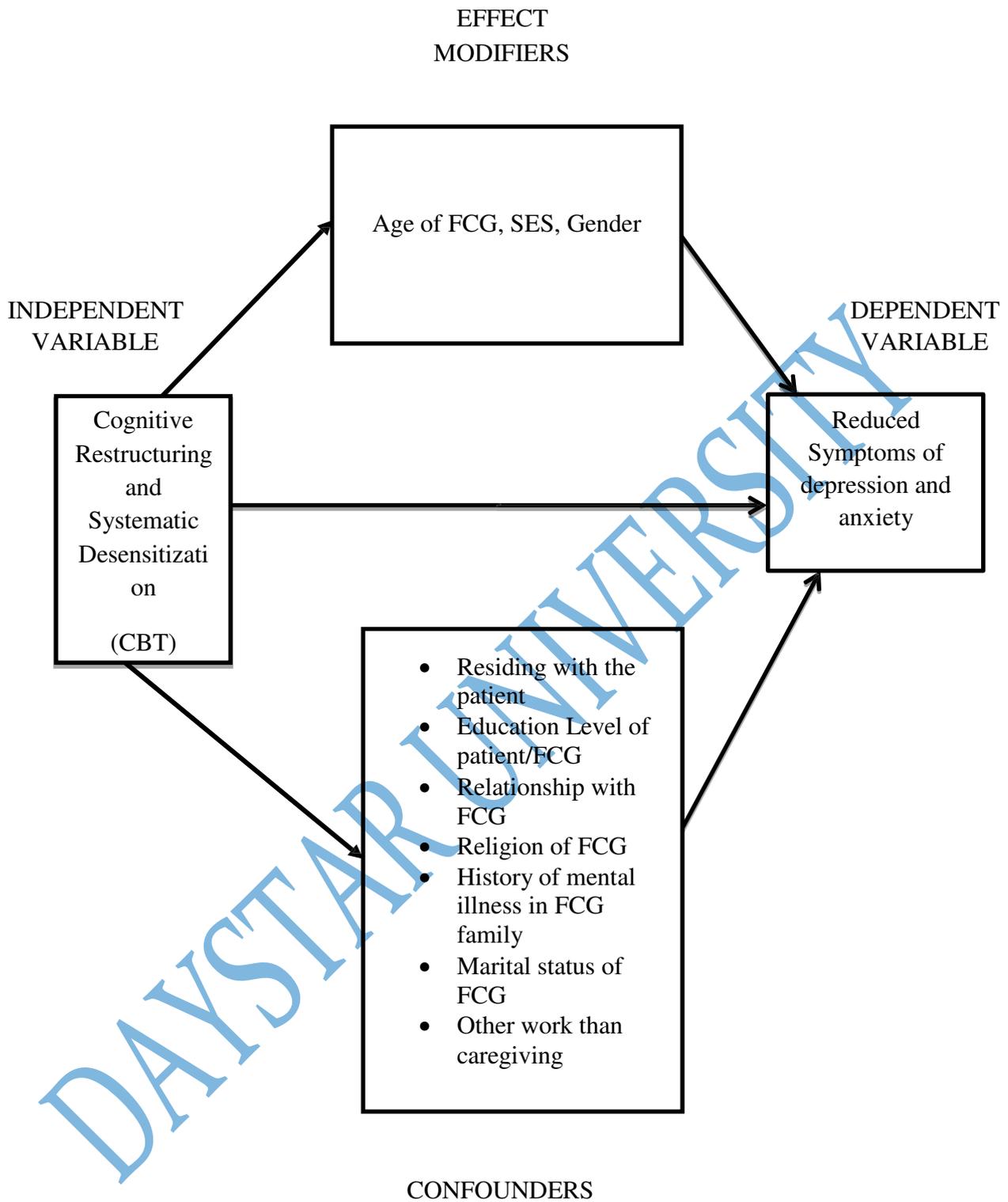


Figure 2.1: Conceptual Framework

Source: Researcher (2015)

2.6 Discussion

Low et al. (2008) did a review of literature on family caregivers on four main data bases ranging from 1950 to 2006 using the words "end stage kidney disease, end stage renal disease, carers, family caregivers and dialysis". They found only 382 articles. This shows the scarcity of research in this area. This study also showed that half of the studies originated from either the USA (11/36) or Canada (7/36). The dominance by North American studies makes it difficult to generalise studies in other contexts, including in Africa. For instance, the studies are replete with the burden of caregiving among elderly patients. These studies are of limited application here because the majority of patients with ESKD are young. With more than one-third of the population in Africa being between 10 -24 (United Nations Population Fund, 2012), it is possible to expect a significant difference in socio-demographics, which Western studies are oblivious to.

In the East African region and Kenya in particular, the researcher found no studies on family caregivers of chronic illnesses. It was hoped that this study would add to the scant body of research in this area, especially, contextually. The literature reviewed by Low et al. (2008) confirmed the preliminary experience of the researcher of existing literature. Despite identification of depression and anxiety among caregivers of ESKD patients, there was no study found presenting a psychotherapeutic model to support caregivers. This present study reiterated the need to develop empowering interventions and made a major contribution by recommending a model that was effective.

In conclusion, the conceptual framework herein has demonstrated absence of a treatment model for depression and anxiety for FCGs. The study's theoretical framework was based on cognitive theory and SDT. The researcher did not find studies on depression and anxiety that used these modalities in Kenya and would therefore like to test them in this context. These theories were relevant to this study and their unique connectivity helped meet

the objectives of the study. Essentially, the FCG with depression and anxiety needs enhanced motivation in order to respond to the treatments proposed by this study. The theories provided a paradigm in which the FCGs were treated both from cognitive and self-determination perspective. Eventually, FCGs' wrongful cognitions were challenged and replaced which in turn enhanced their motivation, in turn, boosting them to wellness.

2.7 Summary

This chapter advanced the research problem by anchoring it within a theoretical framework. The self-determination and cognitive theories were discussed putting the study variables in a theoretical context. The chapter also evaluated earlier literature in relation to the study's variables. Further, it detailed the relationship between the independent and outcome variables of the study within a conceptual framework. The next chapter discusses the methodology that the study applied.

3.1 CHAPTER THREE: RESEARCH METHODOLOGY

3.2 Introduction

This chapter presents the research methods used in the study. The researcher discusses various aspects of this study, namely the research design, population, sample size, sampling procedure, methods of data collection, pretesting, data analysis, and ethical considerations.

3.3 Research Design

Research design refers to how the research is carried out. It involves a well-thought-out plan for collection and analysis of data in order to provide the information being sought (Mugenda, 2008). The study design was quasi-experimental. It is the most used experimental design in social sciences particularly where the aim is to assess the outcome of an intervention (Mugenda, 2008). It is therefore the most appropriate for this study. It is so named because it lacks proper randomization in allocating the participants for the intervention and is therefore not a true experiment (Aussems, Boomsma, & Snijders, 2009).

Study participants were divided into two groups comprising experimental and control groups. CBT was applied on the experimental group while the control group continued with treatment as usual, meaning there was no deliberate intervention applied to them. They continued with their usual interactions with the hospitals where they took their patients for dialysis. In this regard, most of what they received was general information about the patients' condition and the diet to give them. For those with comorbidities, the most common of which are diabetes and hypertension, they were also advised on diet and general care, for instance how to inject insulin and administer medication. Once in a while when the nurses or nephrologists were available they would give the FCGs general information about renal disease. Thus, in the quasi-experimental design, this is the type of design that determines the influence of an intervention on one group and not on another and is referred to as stoic group

comparison, according to Mugenda (2008). Further, he says, the conclusion of such a study is reached by comparing each group's performance post the intervention to determine the effect of the intervention.

In keeping with this design, the study collected the required information from FCGs using psychological assessment instruments and a demographic questionnaire. There was a baseline assessment of participants at the beginning. The intervention was applied for ten weeks on the experimental group after which the midline assessment was done on both groups. No intervention was applied for another ten weeks and then the endline assessment was done.

3.4 Target Population

3.4.1 Study Sites

The study was carried out at various private hospitals in Nairobi County that offered dialysis. The researcher opted to work in the private sector due to having lower attrition rates of patients as compared to public hospitals. This is in line with a meta-analysis done to explore the impact of health services in public versus private hospitals. It established that patients in a private healthcare facility are less likely to die than patients in a public hospital (Montagu et al., 2011).

The experimental group was based at the Coptic Hospital while the control group was drawn from three other hospitals, namely Nairobi West Hospital (NWH), Medanta Africare Medical Centre (MAMC) and Mater Hospital (MH). Having the control group away from the Coptic Hospital ensured that there was no contamination of data and the herding effect was eliminated. Three units were used due the fact that most dialysis centres usually small and none of them had enough patients to raise the numbers required for the correct sample size.

This method worked well also because the study was interested in the family caregiver, who would not be a patient of the hospital or dialysis centre. As a matter of fact, the research was not keen to study the services or care offered by the hospital or dialysis centre, but was interested in the characteristics of the FCGs and the patient. Indeed, some of the units approached for the research declined to participate, being overly protective of their business and not willing to give access to their patients and their caregivers. It therefore necessitated that the FCGs would be recruited independent of the dialysis unit. Hence, the difference in points of recruitment did not confound the results because the unit of analysis was the family caregiver accompanying the dialysis patient. All consenting FCGs enrolled into the study until the sample size was attained. It is needful to note that the control dialysis units did not offer any special programs for the FCGs, least of all measurement and treatment of their mental health. In addition, they were priced more or less the same in terms of cost of dialysis. Therefore, they were similar to the experimental one and did not introduce any confounding effect.

Coptic Hospital (CH) is a hospital that caters for individuals, corporate, non-governmental organizations and state corporations (Coptic Hospital, 2014). It was conveniently selected, a method which Kothari, (2004), says is based on ease of access. This was one of the hospitals visited by the researcher that welcomed the research as they had been looking for means to improve their renal unit. Out of all the others requested, it fitted the requirements of the research most. For instance, it was the only one able to provide the research team with a room to carry out the group therapy sessions. The room was conveniently located near the renal unit of the hospital and hence was convenient for the FCGs who wanted to be near their patients for the four hours of dialysis.

According to the hospital's website, CH is located along Ngong Road in Nairobi (Coptic Hospital, 2014). It is one of the fastest growing health facilities in the country

working with over twenty leading insurance companies in the country. It is a fully fledged, ultra-modern medical facility offering 24-hour inpatient and outpatient services. It was established in 1970, together with another in Zambia, by the Coptic Church in keeping with its mission to alleviate poverty, sickness and suffering of people. The Coptic Church believes that spiritual healing can only be realized once basic needs and physical health has been addressed. To this end, it opens its doors to all people and aims at keeping its charges affordable so as not to turn away all those needing medical help.

It serves clientele in diverse specialties that cover the whole medical spectrum. These include gynaecology, oncology, dentistry, cardiology, general consultants and urology among others. There is a counselling and psychology clinic where clients are helped to adjust to life mentally and emotionally. People in personal crises and with diverse mental health issues are attended to here in individual, group and personal therapy. Clients are also given psychological diagnostic tests and have treatment and intervention programs tailor-made for them in conjunction with psychologists and other physicians and specialists. In addition, the Church also runs a Centre for HIV positive children. Both the clinic and Centre have become useful as a teaching place for psychology students in the delivery of mental and behavioural practice.

The relevant speciality in CH for this study was the nephrology clinic which deals with the diagnosis and treatment of kidney diseases. The doctors here also deal with kidney disease along the trajectory of chronic kidney disease (CKD). CKD includes conditions that damage the kidneys and their ability to function. When the conditions get worse, wastes build up in the body and make the patient feel sick. Further deterioration ends up in renal failure, meaning the kidney cannot function without the aid of external help. This is where patients begin to dialyse. The dialysis unit in CH is headed by a nephrologist and dialyses patients from 8 a.m. to 6 p.m. daily except on Sundays.

The dialysis unit in CH has twelve state-of-the-art dialysis machines with capacity to dialyse twenty-two patients per day. Scheduled dialysis ideally ought to be done three times a week, however, in this unit, the majority of the patients do it twice a week. They are typically accompanied by their caregivers who are usually family members. Each dialysis session lasts four hours and costs between Shs. 5,600 and 7,000 depending on the medication a patient may require. The renal unit is manned by four full-time staff, the nurse in charge and three other nurses and a subordinate staff member. They are usually assisted by nurses in training who learn the practical way of handling renal patients.

The control group was recruited from various other hospitals and dialysis centres. The centres were sampled using a mixture of snowballing and convenience sampling. These sampling methods were used because private facilities do not have a big number of patients and FCGs. Most patients go to public hospitals particularly the main referral hospital in Kenya, Kenyatta National Hospital, where the cost of dialysis is not as high as in other hospitals. The researcher therefore had to recruit from the centres in which FCGs were willing to participate and those to which she was referred. It needs to be noted that these centres featured in the study only because the FCGs who agreed to participate in the study took their patients there. This is because the “study sites” were not the subject of the study, since they were not the unit of measurement, but the FCGs. Nonetheless, as a matter of ethics they are briefly described below. Some of the FCGs who consented to participate took their patients to dialysis units whose characteristics were different to the experimental site and the sites described below. Hence, such FCGs had to be excluded from the study to ensure baseline equivalence of the sample.

The control group sites were as follows:

Nairobi West Hospital (NWH): The hospital is located in Nairobi West, off Lang'ata Road on Gandhi Avenue, approximately 150 meters from Nairobi West Shopping Centre. It

is one of the big health facilities in the country. It is a fully fledged, ultra-modern 24-hour medical facility with a bed capacity of 221. It was incorporated 35 years ago by a medical doctor who is its director. The relevant specialty in NWH for this study is the nephrology clinic which concerns itself with the diagnosis and treatment of kidney diseases. The nephrology unit has several doctors' offices. It dialyses scheduled patients from 8 a.m. to 10 p.m. but is open through nights and Sundays for emergency dialysis. It has 20 dialysis machines which dialyses an average of 37 patients a day excluding emergency cases. The majority of the patients do it twice a week. Dialysis here costs Shs. 7,000. The renal unit of this hospital appears to be the biggest in Nairobi County. For this reason, slightly more than half of the FCGs in the control group took their patients to this hospital.

Medanta Africare Medical Centre (MAMC): It is situated in Westlands, off Waiyaki Way. It runs a dialysis service named RenoCare which has eight dialysis machines and thirty regular patients. It offers patients and their families a service of connecting patients to India for renal transplantation. During the research period, the unit had a special offer for dialysing patients at the cost of Shs. 7000 per session. RenoCare operates from 7 a.m. to 6 p.m. on Mondays to Saturdays and up to 1 p.m. on Sundays. It is manned by two nurses who work in shifts and a consulting nephrologist.

Mater Hospital (MH): The hospital has a renal unit that has 10 dialysis machines. The unit is open from Monday to Saturday 7 a.m. to 7 p.m. and is closed on Sundays, but emergency dialysis is usually done in the Intensive Care Unit. The cost of dialysis here is Shs. 7,000 and the unit caters for around 40 regular patients. There is a regular nephrologist in the unit who works with a team of three nurses. Most of the patients are dialysed twice a week.

3.4.2 Target Population

Population is defined as the entire group of individuals or objects that share commonalities in attributes or characteristics. The total population that the researcher identifies and specifies in the research is referred to as the target population (Mugenda, 2013). It is from the target population that a sample is drawn and to which results obtained may be generalised (Shaughnessy & Zechmeister, 1990). This study researched on family caregivers of patients with end stage kidney disease (ESKD). The researcher had not found any records in Kenya that had information on this population. However, the Kenya Renal Association (2015) reported that 10% of Kenyans have one form of kidney disease or another. Of these, 1% has ESKD and has to be on dialysis or do a kidney transplant in order to survive. Preliminary inquiries before the study revealed that every ESKD patient has at least one family caregiver who was primarily responsible for their care, but most have two or three. Therefore, the target population for this study was family caregivers of ESKD patients who attended Coptic Hospital and the other hospitals or dialysis centres.

In most families, caregivers comprise the patients' spouses, children, one or both parent or siblings. In some cases members of the patient's extended family may be involved. If the patient is a child or adolescent, the caregiver is likely to be the mother who may or may not be in full-time employment. Ordinarily, the FCGs share the responsibilities of care which differ across families. In most families however, one care giver is tasked with accompanying the patient for dialysis, another for care at home, while another may take the burden of ensuring dialysis is paid for. However the roles are shared, the reality is that at least one FCG resides with the patient, while others provide care as non-resident FCGs. Most of the caregivers are women, either spouses or daughters.

Their work, particularly the primary and resident FCG, basically includes ensuring the patient goes for dialysis, adheres to medication and to the renal diet. They may accompany the patient for dialysis and during other hospital visits. Some patients have diabetes and

hypertension and their family caregivers would ensure that they are managing these primary conditions of ESKD. More often than not, they are also responsible for the entertainment of the patient. Although three times per week dialysis is the recommended practice, most patients can only afford twice a week (Naicker, 2013). This is due to the prohibitive cost of dialysis which many families struggle with (Mushi, Marschall, & Fleßa, 2015).

In the experimental site, there were a total of 45 patients who attended dialysis consistently. Most had more than one consistent FCG with the average being two per patient. Usually, it would be a spouse, sibling and either a son or a daughter of the patient. Since the hospital does not keep their records, it was difficult to know their social demographics and that is why this study hoped to find them out. However, most were women although there was a large number of male FCGs as well. The majority lived in and around Nairobi. Although Coptic Hospital charges for dialysis are reasonably cheaper compared to the bigger Nairobi hospitals (that were therefore not featured in this study) the FCGs here struggle a lot to pay. They therefore welcomed the announcement for free or subsidised dialysis by the government (Office of the President, 2015). Coptic Hospital and the other dialysis units did not offer any psychosocial services targeted at this population to support them in their caregiving role.

3.4 Sample Size

A sample is a smaller group of individuals with appropriate characteristics to be studied and is obtained from the population targeted for the study. The sample is selected in a careful manner so as to be a good representation of the intended population for the study (Mugenda & Mugenda, 2003). Selection of the sample in this study was challenging in that there was no sampling frame from which to calculate sample size. The only indication of the numbers of the population of FCGs was that they were pegged to the available patients.

The formula that was used to calculate the minimum required sample size is known as the Lameshow model (Lameshow, Hosmer, Klar, & Lwanga, 1990) and is as follows:

$$n = \frac{\delta^2 (Z_{\alpha/2} + Z_{1-\beta})^2}{(\mu_1 - \mu_2)^2}$$

n - Minimum required sample size

α - Type 1 Error (0.05)

β - Type 2 Error (0.20)

$Z_{\alpha/2}$ - Standard normal deviate at 95% CI (1.96)

$Z_{1-\beta}$ - Standard normal deviate at 80% power CI (0.84)

μ_1 - Calculated mean BAI and BDI scores among family care givers of dialysis patients receiving treatment as usual (17.5 and 18.1 respectively) – Control arm.

μ_2 - Estimated mean BAI and BDI scores among family care givers of dialysis patients receiving the intervention in addition to treatment as usual (14.7 and 14.8 respectively) – Experimental arm.

δ – Standard deviation of mean BAI and BDI scores among family care givers of dialysis patients receiving treatment as usual, (4.8 and 5.7 respectively)

$\mu_1 - \mu_2$ – Effect size, (2.8 unit scores for BAI and 3.3 unit scores for BDI)

n = 42 (using BAI or BDI)

Hence, the minimum sample size required was 42 cases per arm. However, due to the risk of attrition the sample size was raised by 15% to 48 respondents per arm giving a total sample size of 96. In the experimental site, there was a total of 79 FCGs and 60 responded positively to enrol in the study. However, eventually, only 49 FCGs qualified to be in the study and were recruited. Of the 19 who did not meet the inclusion criteria, eight had severe depression and nine had severe anxiety. Two of the 19 were also excluded because they were over seventy-eight years old and had depression with psychosis. These were referred to the

psychiatrists for medical attention. Two of the interested male FCGs were below eighteen who were taking care of their mothers and were also excluded.

Regarding the control group, the researcher was introduced to sixty-five willing potential participants. Several of them did not meet the inclusion criteria (16). Of these five presented with extremely severe depression, while eight had no symptoms of either depression and/or anxiety. One was a minor who would turn 18 by the middle point of the study and another declined to answer some of the questions in the social demographic questionnaire and in the BDI; both were therefore excluded. A total number of 96 family care givers of dialysis patients were finally recruited for the study. Those receiving treatment as usual were 47, while those receiving the intervention in addition to treatment as usual were 49 (over sampled by two FCGs). This may be considered as a small sample. However, this is common in interventional studies where participants are treated on individual basis and it would be too expensive to deal with a very large sample (Marszalek, Barber, & Kolhart, 2011).

3.5 Sampling Technique

Sampling techniques refer to the procedures used to select individuals to participate in a study. A sample is a small group of individuals that is selected from the target population from which inferences and measures about the population could be made (Kothari, 2004). The individuals should represent the target population from which they have been selected. Through the sampling techniques, the researcher gets the sample that is to be used to gather the information concerning the target population under consideration (Mugenda & Mugenda, 2003). This needs to be selected carefully so that it is representative of the population.

The FCGs who were the study participants in the experimental group, were purposively selected. Purposive sampling is a method in which the researcher handpicks the elements that have the necessary information being researched (Shaughnessy & Zechmeister,

1990). In this study, participants were family caregivers of patients with ESKD seen at the main site, Coptic Hospital. This sampling technique enabled the selection of respondents with desired characteristics, that is, those who were providing care to ESKD patients on dialysis and who met the inclusion criteria. In this case therefore the choice of FCGs was pegged to the patients. Coptic Hospital renal unit had a register of patients describing their progress and status among other details. Only caregivers of patients who were not severely ill and had had dialysis for at least six months or more were confirmed chronically ill were selected.

The FCGs included in this study were not carers of patients in a delirium state, indicating that the renal functions were still not severely damaged. This was determined by the results of the blood samples that patients gave every time they went for dialysis. This information was obtained from the hospital register. The reason for omitting FCGs of severely ill patients was that such patients are more demanding and may have hampered the FCG's commitment to the study. In addition, people who lose something significant suddenly in their lives need to mourn fully so as to work through their grief and change their self-image. Loss in this study was indicated by deterioration of physical health of the patient with ESKD and therefore time would be required for the caregivers to work through the various psychological stages of grief of denial, anger, bargaining, depression and acceptance (Kubler-Ross, 1969, 1974). What is more, assessing caregivers with a very sick patient may have caused FCGs to express anger, rage, and hatred, which could falsely increase the severity of depression and anxiety. Additionally, grief would potentially cause attrition of the sample.

Participants in the control group were recruited through snowballing. This method is used when participants are difficult to locate Mugenda and Mugenda (2003). It was chosen for the control group because there was no register where one can identify FCGs. The other private hospitals apart from Coptic Hospital that the researcher tried to interest in the research were too protective of their clientele to allow them to be interviewed. This made it difficult to

locate participants and the researcher was left with no option but to request for referrals from the FCGs at Coptic Hospital. For this reason, a particular caregiver at Coptic Hospital referred the researcher to a dialysis unit he knew of where after explaining the research to some FCGs; having given their consent and meeting the inclusion criteria they were recruited for the study. These ones then referred the researcher to other family caregivers who underwent the same recruitment process. The referrals proceeded in this manner until the control group was saturated. The researcher met 65 willing potential participants, but not all met the inclusion criteria with the result that 49 were recruited.

3.6 Data Collection Instruments

The study used several data collection instruments which are described below.

i. The Hospital Anxiety and Depression Scale (HADS). The tool was developed by Zigmond and Snaith (1983). This is a short tool used to measure depression and anxiety in a variety of settings and not just in hospitals, as its name suggests (Snaith, 2003). It has 14 items in total that ask the client to reflect on their mood in the past week. Seven items assess depression, and the other seven assess anxiety. Each item is rated on a 4-point scale (ranging from 0 = no not at all, to 3 = yes definitely), for a total score ranging from 0-21 for each subscale. In terms of scoring, a score of 0 to 7 for either subscale was regarded as in the normal range. A score of 8 to 10 is suggestive of the presence of depression and/or anxiety and a score above 11 indicates presence of the disorder (Zigmond & Snaith, 1983).

In this study it was used to screen potential participants for the two disorders. It took two to three minutes to complete and one minute to score. It was therefore found to be a quick tool to use to indicate whether or not a potential participant qualified for the study. Instead of administering the lengthier questionnaires only to find that a participant did not qualify, it was found more prudent time-wise to screen them first. The participants who scored 8 and above in the HADS were the only ones included in the study.

The basic psychometrics of HADS was found to be good based on data from a large population. It was sound on “factor structure, intercorrelation, homogeneity and internal consistency” (Mykletun, Stordal, & Dahl, 2001, p.543). Its authors state that it has internal consistency, with values of Cronbach's coefficient (α) being 0.80 and 0.76, respectively. However, it has been noted that HADS is not intended to be a complete diagnostic tool, but a means of identifying individuals who need further psychiatric evaluation and help (Herrmann, 1997). Thus, it was only appropriate as a screening tool.

ii. A researcher-generated questionnaire capturing the socio-demographic data of the FCGs: The data sought included age, gender, marital status, cost of dialysis per week, who pays for dialysis, and challenges with costs of treatment; in addition, data on educational level, religion and occupation of the FCGs was sought.

iii. The Beck's Depression Inventory (BDI) was used to measure depression. The tool was authored by Aron Beck in 1961 (Farinde, 2013). Since then, the instrument has been used to measure depression all over the world (Rioux & Narayan, 2012; Saeed et al., 2012 ; Seze et al., 2013). It is a self-report scale that is used in both clinical settings and for research and is used with individuals who are 13 years of age and above (Beck & Greenburg, 1994). For the general population, a score of 21 or greater is associated with depression but for individuals who have been clinically diagnosed, scores from 0 to 9, represent minimal depressive symptoms, scores of 10 to 16 indicate mild depression, scores of 17 to 29 indicate moderate depression, and scores of 30 to 63 indicate severe depression (Beck, Steer, & Garbin, 1998).

The BDI is used to identify and assess depressive symptoms and their severity and has been reported to be highly reliable regardless of the population (Beck, Epstein, Steer, & Brown, 1988). Its psychometric properties have been found to be acceptable due to its internal consistency which ranges from .73 to .92 with a mean of .86 and the internal

consistency, with alpha coefficients of .86 and .81 for psychiatric and non-psychiatric populations respectively (APA, 2014). It has been widely used in research in Kenya and has been found to have sound psychometric properties (Othieno, Obundo, Kathuku, & Ndetei, 2011). Its Swahili version was used in a study to determine the risk of depression in caregivers of children with intellectual disability at the Gachie Catholic Parish, Archdiocese of Nairobi (Mbugua, Kuria, & Ndetei, 2011).

iv) The Beck Anxiety Inventory (BAI) was developed to address the need for an instrument that would distinguish anxiety from depression (Beck, Epstein, Brown, & Steer, 1988). It was expected that the BAI would offer advantages in clinical and research settings over the then existing self-report measures which were not distinguishing depression and anxiety adequately. The BAI is a 21-item scale that measures the severity of self-reported anxiety consisting of descriptive statements of anxiety symptoms, which are rated on a 4-point scale in adults and adolescents (Beck & Steer, 1993). Each of the 21 items describes common symptoms of anxiety. The respondent is asked to rate how much he or she has been bothered by each symptom over the past week on a 4-point scale ranging from 0 to 3. The answers are summed up to obtain a total score that can range from 0 to 63. The instrument has been found to be psychometrically sound with its internal consistency (Cronbach's alpha) ranging from .92 to .94 for adults and test-retest (one-week interval) reliability at .75 (APA, 2014; Beck et al., 1988).

The BAI has been used in Zambia to measure anxiety among HIV patients in Lusaka (Ncheka, 2014). In Nigeria it was used with a reliability coefficient of .79 which was obtained in a school study that measured anxiety due to examinations (Olaitan & Moroluyo, 2014). A Kenyan study also used the BAI to measure anxiety among diploma students at a nursing college and found its psychometric properties sound (Muriungi & Ndetei, 2013). Noteworthy however, is the necessity noted by scholars for a tool for measuring anxiety that

has been normed for our society in place of the BAI (Ndetei, Khasakhala, Mbwayo, & Mutiso, 2011).

3.6.1 Inclusion Criteria

Since it was not possible to study the entire target population, a sample was drawn. The sample included the spouses, children, parents and siblings directly involved in caring for the ESKD patients who gave their consent. (Close extended family members had to be included when, despite not being in the nuclear family, related so closely to the patient as to be considered a close family member). They were between 18 and 75 years of age. The patients they looked after had done dialysis for at least six months and were in a stable condition. If the patient had done dialysis for less than six months, confirmation was obtained from the nephrologist that the condition was not merely acute, but chronic; the patient would be dialysed for the rest of their lives if they did not receive a kidney transplant. To participate in the study the FCGs were positively assessed for depression and anxiety.

3.6.2 Exclusion Criteria

The participants excluded from this study were hospital staff, extended family members and anybody below 18 years and above 75 years involved in caring for the patient. FCGs whose scores indicated severe depression and anxiety were also excluded since for such level of illness psychopharmacological interventions in addition to psychotherapy are indicated (Driessen & Hollon, 2011). The researcher was not competent to prescribe medication.

3.7 Data Collection Procedure

3.7.1 Recruiting Participants

Recruitment begun immediately in June 2015 after the requisite approvals were granted. The researcher had visited Coptic Hospital in advance and prepared the staff at the

renal unit for recruitment. The nurses advertised the research to the patients and FCGs using pieces of paper that the researcher had left at the unit. The papers informed them about the study and invited them to enrol. Simultaneously, the researcher had trained a team of research assistants on recruitment procedures and ethical considerations and stationed them at a desk at the renal unit.

Potential participants began to inquire at the desk and the researcher and the assistants would explain what the research was all about. They were informed about the screening and if they consented verbally, they moved to the next step which was age verification. If they consented, they were asked for a copy of their national identity card to check the age. If between 18 and 75 years, the HADS was administered to them and if they did not qualify they would be thanked and released from enrolment. If they qualified on the basis of age and symptoms (HADS) they could make further inquiries regarding the research after which the potential participant would confirm that they still wanted to continue with the recruitment. The benefits and risks of participating were explained as well as issues of confidentiality and anonymity in order to allay any fears of participating in the research.

The potential participants would then sign the consent form and thereafter complete the other research instruments, that is, the Social Demographic Questionnaire and the BDI and BAI. If scored positively for mild and moderate depression and anxiety or both, the FCG was assigned a therapy group. The same process was applied to every FCG who expressed interest until the full sample was achieved. The entire experimental group was recruited for the baseline assessment between 6th June and 31st July 2015. For the control group, as referrals were done by fellow FCGs, the researcher would meet with the FCGs on the days their patients went for dialysis. The same procedure of recruitment was followed, except that not all participants were put in groups for the control group since there would be no group therapy. This was done from one dialysis centre to another until the control group sample was

achieved at baseline. This procedure for the control group commenced on the 8th of June and ended on 31st July 2015.

3.7.2 Application of the Intervention

The intervention was applied to the experimental group, which had 49 members. They were divided into five groups. This was to enable therapy that was planned for from Monday to Friday since the research assistants, who were the group therapists, had Saturday engagements and could not make it to the Hospital. The FCGs also preferred not to have sessions on Saturdays so that they would use the day to run errands as the patients underwent dialysis. Four groups had ten members each while one had nine. Each group of ten was then further subdivided into groups of five to cater for FCGs who brought their patients for dialysis in the mornings and in the afternoons. The group of nine was divided into five and four participants in the morning and afternoon respectively. Due to this, there was a morning and an afternoon group.

Group sessions were planned on the particular days that the FCGs brought their patients for dialysis. All the sessions were held on Mondays to Fridays when the patients, under the care of the FCGs, were undergoing dialysis. Since each dialysis session lasts four hours, there was ample time to conduct group therapy for two hours per group. In the interest of time, simultaneously with the group therapy, recruitment continued until the sample was achieved. As recruitment ensued, groups would form and they would start therapy. Accordingly, each group started and ended therapy and their assessments done at different times. The last group's therapy occurred on 30th September and the last endline measurement was on 5th December 2015.

Each group therapy was conducted by two therapists who were well trained in CBT. The lead therapists were holders of a Master's in Psychology while the co-therapists were Master's students. The research team including the researcher had a total of five therapists.

The structure of treatment was adapted from the Group Therapy Manual for Cognitive Behavioural Treatment of Depression (Munoz & Miranda, 2000) and A Therapist's Guide to Brief Cognitive Behavioural Therapy (Cully & Teten, 2008). These manuals were chosen since they were based on Cognitive Restructuring which recommended a therapy period of twelve weeks. However, the researcher combined the first and second sessions, then third and fourth sessions into two instead of four and therefore therapy was applied for ten weeks. Homework and follow-up was emphasized so that application of the intervention was not in any way adversely affected. In any case, these were the introductory sessions which did not involve too much. This action was occasioned by the risk of attrition of the sample since the participants had learnt of and were eagerly anticipating the just announced provision of dialysis services by all government hospitals (Office of the President, 2015).

Unfortunately for the FCGs the matter of the government's intervention was politicised in the period that followed, causing a lot of uncertainty in the renal arena. Many FCGs were on tenterhooks as they awaited for resolution of the matter and this went on for the duration of recruitment and intervention and has not been fully resolved as at the completion of the study. Due to this uncertainty, the researcher had to combine sessions to reduce the treatment from twelve to ten weeks in case the President's directive was effected and a substantive part of the sample attrited.

The FCGs were taken through therapy as per the Cognitive Restructuring Sessions Plan set out below:

Week 1: Session one and two were covered. The content for this session was group introductions and norms; introduction to CBT; how thoughts affect mood- 1. Relaxation techniques were also introduced. Participants took the Daily Mood Scale (DMS) for homework. They marked it to indicate their moods for the week.

Week 2: Sessions three and four were covered. Homework was reviewed and it had been accurately done. While most of the participants had done their homework, some complained that they felt like they were back to school where homework may be viewed as punitive. As a result, in consultation with the research assistants and the participants, the word “homework” was changed to “Practice”. The topic on how thoughts affect mood was thereafter introduced. Participants were taught how to identify automatic thoughts that cause depressed mood and anxiety. Then, they were taught how thoughts affect mood and shown how to address negative thoughts through the ABCD model. Consequently, they were given the DMS for the week. In addition, they were taught on how to complete the Daily Thought Record (DTR).

Week 3: Session five on challenging maladaptive thoughts was taught this week. Using Socratic questioning, group members were asked to share their thoughts and they learnt to identify wrongful thinking and how it affected their behaviour. In this session they were led to make a review of the sessions so far and to identify their gains.

Week 4: Session six was on working with pleasant activities. Depressed individuals usually have lost pleasure in activities they used to enjoy before they fell ill. For this reason, this part of the intervention was to help participants identify pleasurable activities that they would engage in. They would discard the belief that nothing in life would give them pleasure as they found pleasant activities to engage in. Some activities were suggested in the List of Pleasant Activities. Several activities on the list were not culturally understood and the research team agreed to discard them and substitute them with those that participants could identify with. The practice this week was the DMS, DTR and List of Pleasant Activities. Participants were asked to share in the coming session which activities they engaged in and how they affected their depressed feelings.

Week 5: The groups this week covered sessions seven and eight. The idea of increasing pleasant activities in the participants’ daily schedule was furthered. Having learnt how to

identify maladaptive thoughts, the FCGs were now practicing to challenge them and identifying ways in which they were unhealthy. They were strengthening their ability to have healthier thoughts and hence ability to regain motivation to do the things they used to enjoy. The practice in week 4 was repeated in this week.

Weeks 6, 7, 8 and 9: Sessions nine to twelve were covered. FCGs were psychoeducated on how depression affects social relationships. They were helped to deal with social isolation and building their social support by challenging wrongful thoughts about their social contacts and replacing them with helpful contacts. In addition to the above practice, they were required to report on the useful social contact they were making between sessions.

Week 10: This was the last session where participants shared what they had learnt and what they had been practicing. They were prepared for midline treatment and termination the next week. Generally the sessions would begin with cognitive restructuring for one hour and ten minutes and then the rest of the time would be taken by systematic desensitization. All the participants were involved since almost all had depression and anxiety comorbid.

The participants looked forward to the last session as though it were a test because they were curious as to how they had fared. In the 11th session, midline assessment was done in the groups unlike in baseline assessment when the psychological tests were undertaken by individual participants. The therapists then collected the tests and participants debriefed. They were then informed of the dates for endline assessment and they requested the staff at the renal unit to remind them. Closer to the dates, the staff sent reminders to the FCGs to come ready for their group sessions as they accompanied their patients for dialysis. Endline assessment took the same group format where the FCGs were assessed in their groups. This was also treated as the termination of the research and the participants were thanked by the research team with tea and snacks.

The control group were not engaged at all at this time except for the reminders sent for midline and endline assessments.

Figure 3.1 below illustrates the entire data collection procedure.

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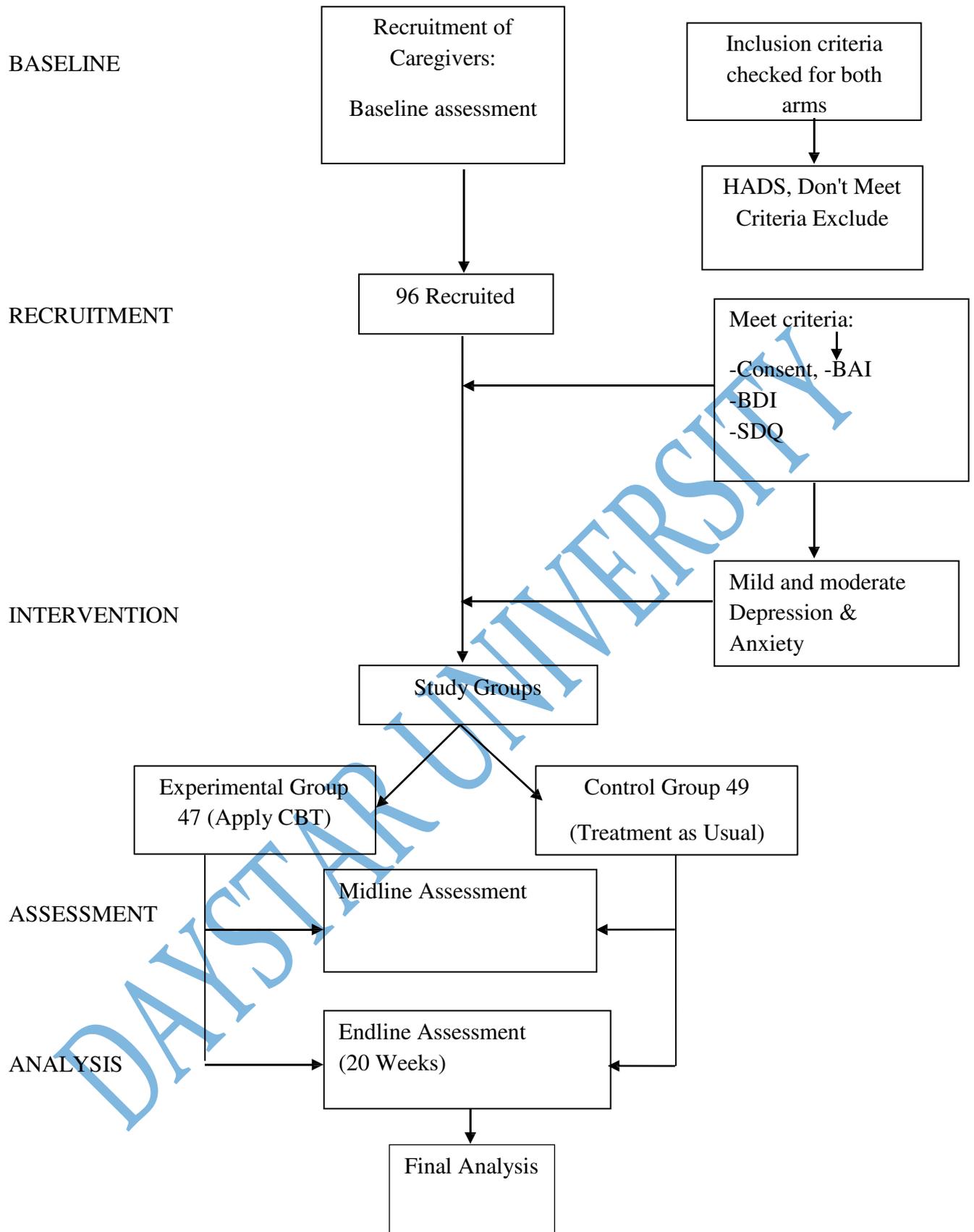


Figure 3.1: Data Collection Flow Chart

Source: Researcher (2016)

3.8 Pretesting

Pretesting refers to trying out the instruments to be used in data collection to gauge their clarity, ease of use, and the extent to which participants will understand them (Cohen, Manion, & Morrison, 2007). Pretesting therefore reveals any need to revise the instruments. The pretest was done on a different population but with similar characteristics to those of the study population (Mugenda & Mugenda, 2003). Use of a different population was done to pretest sensitisation of the research instruments before exposing them to the study participants. Failure to do this might have skewed the study results. What this means is that if the participants were exposed to the instruments before the study they might have behaved in a way that might have affected the results once the real study began (Cohen, Manion, & Morrison, 2007).

Pretesting also enabled the researcher to anticipate how respondents might react to the proposed research and therefore was able to anticipate the issues as well as observe the time taken to administer the instruments. It is for this reason that the researcher carried out the pretesting of the research instruments at Parklands Kidney Centre Renal Unit with thirteen respondents (10% of the sample) as argued by Mugenda and Mugenda (2003). The pretest participants made suggestions for changes in the socio-demographic questionnaire which were incorporated in the final copy.

Though no changes were made to the psychological tests, the researcher saw first-hand the difficulties the pretest participants experienced in answering the questions. These were taken into account when administering the instruments to the actual participants. For instance, some participants in the BAI (Appendix D) struggled to understand some words like “wobbliness in my legs” and “face flushed”. They claimed that these concepts were foreign and they did not know how to apply them. Other participants were embarrassed by question 21 on the BDI (Appendix E), which was on changes in their interest in sex and said it was not

in their culture to discuss sex so openly. Research assistants were also trained on what reactions they might anticipate from participants and how they could deal with them. All the input that the FCGs in the pretest centre gave was useful and was incorporated in the research assessment process.

3.9 Data Analysis Plan

All data collected in hard copy form was stored in the researcher's office where there was restricted access. Upon satisfaction that the data would no longer be required, it will be destroyed in the future. All the data that was stored in the computer was saved under a strong password which only the researcher knew. It was often changed to protect the participants (Blaxter, Hughes, & Malcom, 2001). Data quality was assured throughout the study. During the collection phase, the researcher closely supervised the assistants to make sure they followed the procedure set out above, for instance, that the inclusion and exclusion criteria were adhered to. The intervention adhered strictly to the manual so that results on effectiveness were not skewed.

The process of data analysis began with questionnaires being inspected once more for completeness before being accepted for data entry. The researcher contacted participants for any incomplete questionnaires for completion. The questionnaires were then coded and the data entered by a data entry clerk. Double entry was done in order to double-check that the entries were accurate. Data entry screens had in-built checks to prevent wrong data entry. The data was then cleaned after which the researcher counterchecked what was entered against the raw data. Thereafter the data was exported to Statistical Package for Social Sciences (SPSS) version 21 for analysis. The levels of analysis done were univariate, bivariate, and multivariate. Analyses were carried out in accordance with the study objectives, as explained below:

During the univariate analyses exploratory data analysis techniques were used to uncover the distribution structure of the study variables as well as identify outliers or unusually entered values. Statistical analyses commenced with descriptive statistics of continuous (means and standard deviations) and categorical (proportions) variables. Bivariate analysis was done to find the distribution of different variables in comparison between and within groups. Between groups comparisons were done at every time point whereas within groups comparisons (separate for every study group) were performed between baseline and specific follow-up. In order to establish baseline equivalence between experimental and control groups three analytic tests were used: distribution of categorical variables (proportions) was compared using Pearson's chi-squared test, whereas distribution of continuous variables (Mean \pm SD) was compared using t- tests (two categories) or one-way ANOVA (three or more categories).

Analysis of factors associated with specific outcome variables (BAI, BDI, BAI-BDI comorbid) commenced by performing bivariate analysis. Mean \pm SD for specific outcome variables (BAI, BDI, BAI and BDI comorbid) across categories of each independent variable were compared using t-tests (two categories) or one-way ANOVA (three or more categories).

Multiple regression analysis: The results of the bivariate analyses informed multivariable statistical regression models for a more thorough exploration of outcome variables. Potential confounders and effect modifiers were tested using multiple linear regression models on continuous outcome variables. All independent variables with significant mean difference observed were considered together in a multiple linear regression. Beta coefficients with their corresponding standard error were tested by means of a t-test. Beta coefficients with corresponding 95% Confidence Interval (CI) were used to estimate the strength of association between independent and specific dependent (outcome) variables.

Analysis of efficacy of the intervention: The longitudinal continuous outcome variables across the three time points (repeat measures) were analysed in order to understand the effect of variation in specific outcome variables due to groups (between-groups effect) and due to follow-up time (within-groups effect). Independent t-test was used to assess between group effect, whereas Paired t-test was used to assess within group effect. Binary logistic regression was used to determine the association between the intervention and significant symptom reduction in continues outcome variables.

Threshold for statistical significance for all analysis was set at $p < 0.05$. After analysis of the data, results were presented in percentages, frequency tables, means, standard deviation and narratives. The results were thereafter interpreted to enable the researcher to present the findings and conclusions of the study.

3.10 Ethical Considerations

The purpose of ethical considerations in research is to ensure that the research process does not cause physical, emotional, mental and psychological or any other harm to the subjects. Ethics is therefore concerned about how the researcher conducts himself or herself with regard to the standards that govern their field. The researcher's conduct has to be morally and legally acceptable so as to avoid any negative effects on others (Corey, Corey, & Callanan, 2007).

This study made several ethical considerations. The researcher first endeavoured to obtain institutional approval. This was sought from the Daystar University through the Head of Department (HOD) of the Psychology and Counselling Department at Daystar University. In addition, permission to carry out the research was attained from the Nairobi Hospital Ethics Committee, after which consent was pursued from the Kenya Government through the National Council for Science, Technology and Innovation (NACOSTI). All these approvals were granted. However, it is noted that although approvals were obtained for a particular site,

the research was carried out in other sites due to circumstances beyond the researcher, supervisors, the Head of Department and the Coordinator of the doctoral program under which the researcher was working. In conjunction with all the mentioned oversight offices, the researcher was allowed to pursue the research since there was no fundamental change in the spirit and philosophy of the research. Indeed, the topic was only accordingly amended for brevity and better readability.

The researcher obtained informed consent from the research participants who were informed what the research was about including the benefits and risks of the study to them. The benefits included becoming aware of their condition and getting free therapy. A risk they were made aware of was that they might experience some distress arising from self-awareness of their condition. The control group was informed that they would not receive any therapy but that if the intervention worked they might also receive the same treatment in future. The researcher is in touch with the control group and is currently making arrangements to roll this out among those who will be available. Explanations were given with due regard to any anxiety or stress on the part of both groups. Participants were informed of the measures that the researcher undertook to ensure that all the information they gave was to be kept securely and held in confidence. Informed consent was obtained verbally and in writing from the participants. In addition, those who had severe levels of depression and anxiety did not participate in the research, but were instead referred for psychiatric evaluation and treatment.

The researcher also took measures to ensure that confidentiality was maintained throughout the research and after (Mugenda & Mugenda, 2003). This called for assuring the participants that any information shared and identity would be kept anonymous, and that no information by participants would be revealed to anyone without their consent. Their identities would remain anonymous during and after the study by using code numbers. To

this end, questionnaires did not contain their names or any other form of identification. Accordingly, none of their names were used in discussing the results and in the report.

More so, some benefit might arise with the training that was occasioned to the research assistants on CBT and conducting research in general. This gave them exposure and added to their knowledge and repertoire of skills including research ethics on which they were trained.

3.9 Summary

This chapter discussed the research methodology that was used in this study. The researcher carried out a quasi-experiment working with experimental and control groups. These were drawn from the targeted population who were the family caregivers of renal patients on dialysis at various private hospitals that were purposively selected. Data was collected using psychological tools and a researcher-generated socio-demographic questionnaire. The sample size comprised 96 family caregivers whose patients attended the private hospitals for treatment. The data collected was analysed using SPSS version 21 in order to achieve the study's objectives. Throughout the study, research ethical standards were observed and upheld. The next chapter presents, analyses and interprets the results of the study.

4.1 CHAPTER FOUR: DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

4.2 Introduction

In this chapter, the findings from the participants are presented and interpreted. Following the baseline recruitment, a total of a total of 96 participants were enrolled in two groups, namely Control (n=47) and Experimental (n=49). All participants participated in the study from beginning to end except for two who left due to work commitments thereby occasioning an attrition rate of 2%. Most of the caregivers were female (56.5%) with slightly over 50% of them being married. Mean age among the FCGs was $42.7 \pm (13.4 \text{ SD})$ ranging between 18 and 74 years. There was no significant difference in mean age between FCGs enrolled in the experimental ($44.2 \pm (14.1 \text{ SD})$) arm compared to those enrolled in the control arm ($41.2 \pm (12.6 \text{ SD})$), ($p=0.270$). Mean age of female FCGs was high ($44.8 \pm (11.3 \text{ SD})$), though not significantly different compared to mean age of their male counterparts ($39.9 \pm (15.3 \text{ SD})$), ($p=0.072$).

A total number of 96 family care givers of dialysis patients participated in the study. Those receiving treatment as usual were 47, while those receiving the intervention in addition to treatment as usual were 49. Three assessments were done at baseline, midline and endline on specific population characteristics. Baseline assessment was done on a number of background characteristics, socio-behavioural characteristics, and mental illnesses. Background characteristics were socio-demographic characteristics of patients and study participants (FCGs). Socio-behavioural characteristics measured were alcohol and tobacco use. Measures of mental illnesses included BDI and BAI and BAI-BDI comorbidity scores.

The intervention was applied on the experimental group for ten weeks after baseline. For the control group it was treatment as usual. Immediately after the intervention, the midline post intervention assessment was done and will henceforth be referred to as the midline assessment. The final assessment was made ten weeks after midline within which